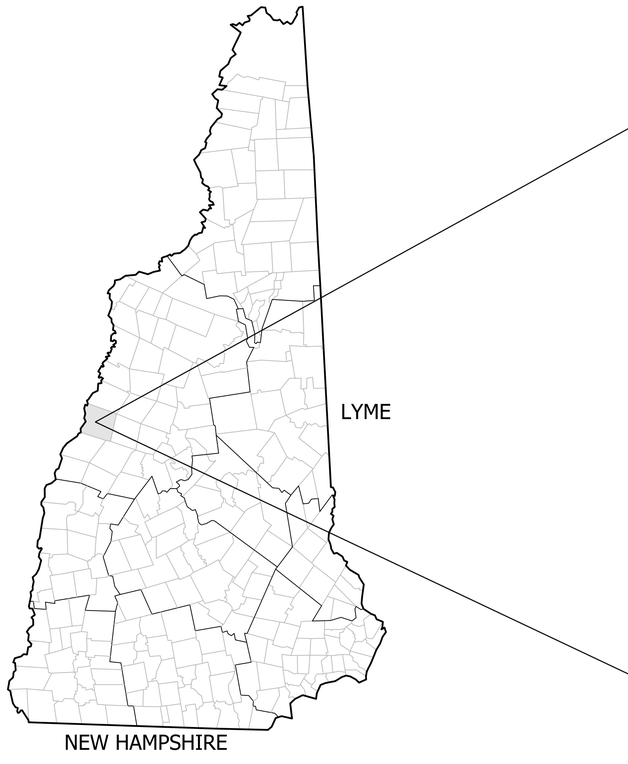
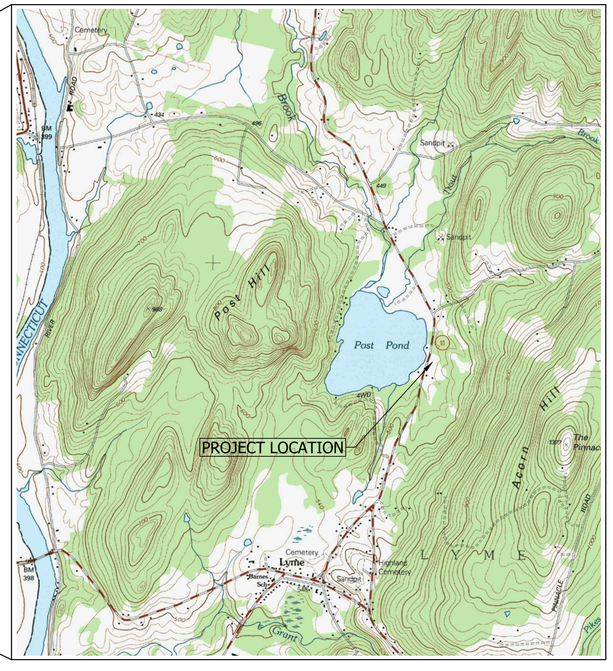
LOCH LYME LODGE

UTILITY IMPROVEMENT PROJECT

LYME, NEW HAMPSHIRE

ZBA SUBMITTAL, MARCH 2021





LOCATION PLAN

SCALE: 1" = 2000'

OWNER:

LOCH LYME LODGE, INC.
PO BOX 239
LYME, NH 03768
(603) 795-2141

ENGINEER:

horizons Engineering
176 NEWPORT ROAD - SUITE 8
NEW LONDON, NH 03257
(603) 877-0116

STATE OF NEW HAMPSHIRE – CHRISTOPHER J. HERNICK No. 15390 LICENSED PROFESSIONAL ENGINEER

SHEET LIST:

	COVER SHEET
C1.1	EXISTING CONDITIONS PLAN
S0	SITE PLAN OVERVIEW
S1 - S5	SITE PLAN
S6	WASTEWATER COLLECTION PROFILES AND DETAILS
S7	WASTEWATER TREATMENT DETAILS AND NOTES
TP1	TEST PIT LOGS AND LOCATIONS
C3.1	CONSTRUCTION SEQUENCE, EROSION CONTROL NOTES AND DETAILS
C3.2	STANDARD WATER DETAILS AND NOTES

PERMIT NOTES

THIS PROJECT SHALL COMPLY WITH ALL CONDITIONS OF ALL PERMITS FOR THE PROJECT. COPIES OF THESE PERMITS MAY BE REQUESTED FROM THE HEI NEW LONDON OFFICE.

NHDES SHORELAND PERMIT	PENDING
NHDES SUBSURFACE PERMIT	PENDING
NHDOT EXCAVATION PERMIT	PENDING

PRELIMINARY PRICING SET
NOT FOR CONSTRUCTION

DATE OF PRINT
MARCH 18 2021
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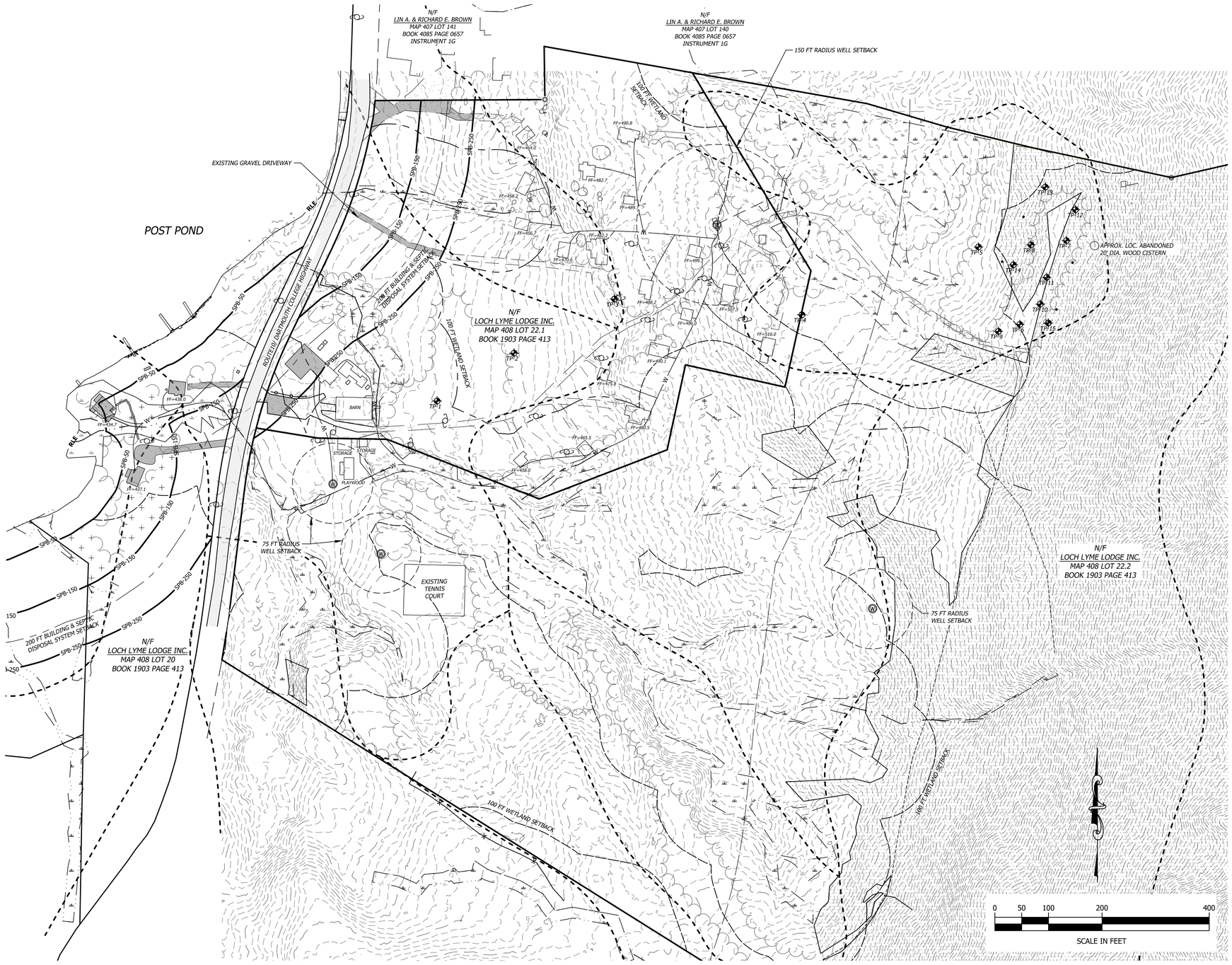

GENERAL NOTES

1. ALL WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THESE PLANS AND PROJECT SPECIFICATIONS.
2. NO EXISTING MONUMENTS, BOUNDS, OR BENCHMARKS SHALL BE DISTURBED WITHOUT FIRST MAKING PROVISIONS FOR RELOCATION.
3. ALL WORK SHALL BE PERFORMED WITHIN THE PROPERTY OF, AND EASEMENTS SECURED BY, THE OWNER.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DATA COLLECTION AND PREPARATION OF RECORD DRAWINGS.
5. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR CONTROLLING EROSION IN ALL AREAS DISTURBED BY HIS ACTIONS. COSTS FOR REQUIRED EROSION CONTROL, REGARDLESS OF WHETHER OR NOT SUCH MEASURES ARE SHOWN ON THE ENGINEERING DRAWINGS, SHALL BE BORNE BY HIM.
6. UTILITY LOCATIONS ARE BASED ON THE BEST AVAILABLE INFORMATION. THE CONTRACTOR IS RESPONSIBLE FOR LOCATION AND PROTECTION OF EXISTING UTILITIES AND SHALL REPAIR ANY DAMAGE AS QUICKLY AS POSSIBLE AT HIS OWN EXPENSE. ALL UTILITIES ENCOUNTERED SHALL BE LOCATED BY DEPTH AND TIES AND SHOWN BY THE CONTRACTOR ON HIS "AS BUILT" DRAWINGS. HAND EXCAVATION SHALL BE DONE WHEREVER UNDERGROUND UTILITIES ARE SHOWN OR ANTICIPATED. THE CONTRACTOR SHALL CONTACT DIG SAFE AND THE APPROPRIATE AUTHORITIES PRIOR TO ANY CONSTRUCTION IN ORDER TO VERIFY EXISTING CONDITIONS AND UTILITY LOCATIONS.
7. TOPOGRAPHY ON THESE PLANS IS FROM SURVEY PREPARED BY CLD CONSULTING ENGINEERS IN JUNE, JULY & AUGUST OF 2008. ELEVATIONS ARE BASED UPON NGVD 1929 DATUM. BOUNDARY INFORMATION IS PROVIDED BY PLAN BY CLD CONSULTING ENGINEERS ENTITLED "LOCH LYME LODGE, SUBDIVISION PLAN" DATED JANUARY 2014.
8. WETLAND DELINEATION BY BEAVER TRACKS, LLC, IN THE SPRING AND FALL OF 2008. AN UPDATED WETLAND DELINEATION FOCUSED ON THE WETLANDS ADJACENT TO THE PROJECT AREA WAS COMPLETED IN NOVEMBER 2020.
9. NEW TEST PITS WERE OBSERVED AND TEMPORARY BENCH MARKS WERE SET BY HORIZONS ENGINEERING IN NOVEMBER 2020.
9. INFORMATION FROM THE PREVIOUSLY APPROVED CLD CONSULTING ENGINEERS DESIGN PLANS WAS UTILIZED AND MODIFIED AS TO MEET THE CURRENT RULES AND REGULATIONS FOR SEPTIC DESIGNS. THE PROPOSED COMMUNITY WATER SYSTEM WAS NOT INCLUDED IN THE ORIGINAL DESIGN.

LEGEND

- UTILITY POLE
- ARTESIAN WELL
- PROPERTY LINE
- BUILDING SETBACK
- RLE — ORDINARY HIGH WATER
- SPB-50 — SHORELAND 50' BUFFER
- SPB-150 — SPB-150 — SHORELAND 150' BUFFER
- SPB-250 — SPB-250 — SHORELAND 250' BUFFER
- CONTOUR - MAJOR INTERVAL
- CONTOUR - MINOR INTERVAL
- WETLANDS LINE
- RLE — WATER LINE
- FM — SEWER FORCE MAIN
- WETLANDS SETBACK
- SOILS LINE
- GRAVEL
- SHORELAND: IMPERVIOUS AREA
- UNALTERED AREA IN THE NATURAL WOODLAND BUFFER
- STEEP SLOPE AREA (<20% GRADE)

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POMFRET VT • KENNEBUNK ME • CONWAY NH

LOCH LYME LODGE

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LYME, NEW HAMPSHIRE

EXISTING CONDITIONS

NO.	DATE	REVISION DESCRIPTION	ENG	DWG

DATE: MAR 2021	PROJECT #: 20819
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SHEET C1.01

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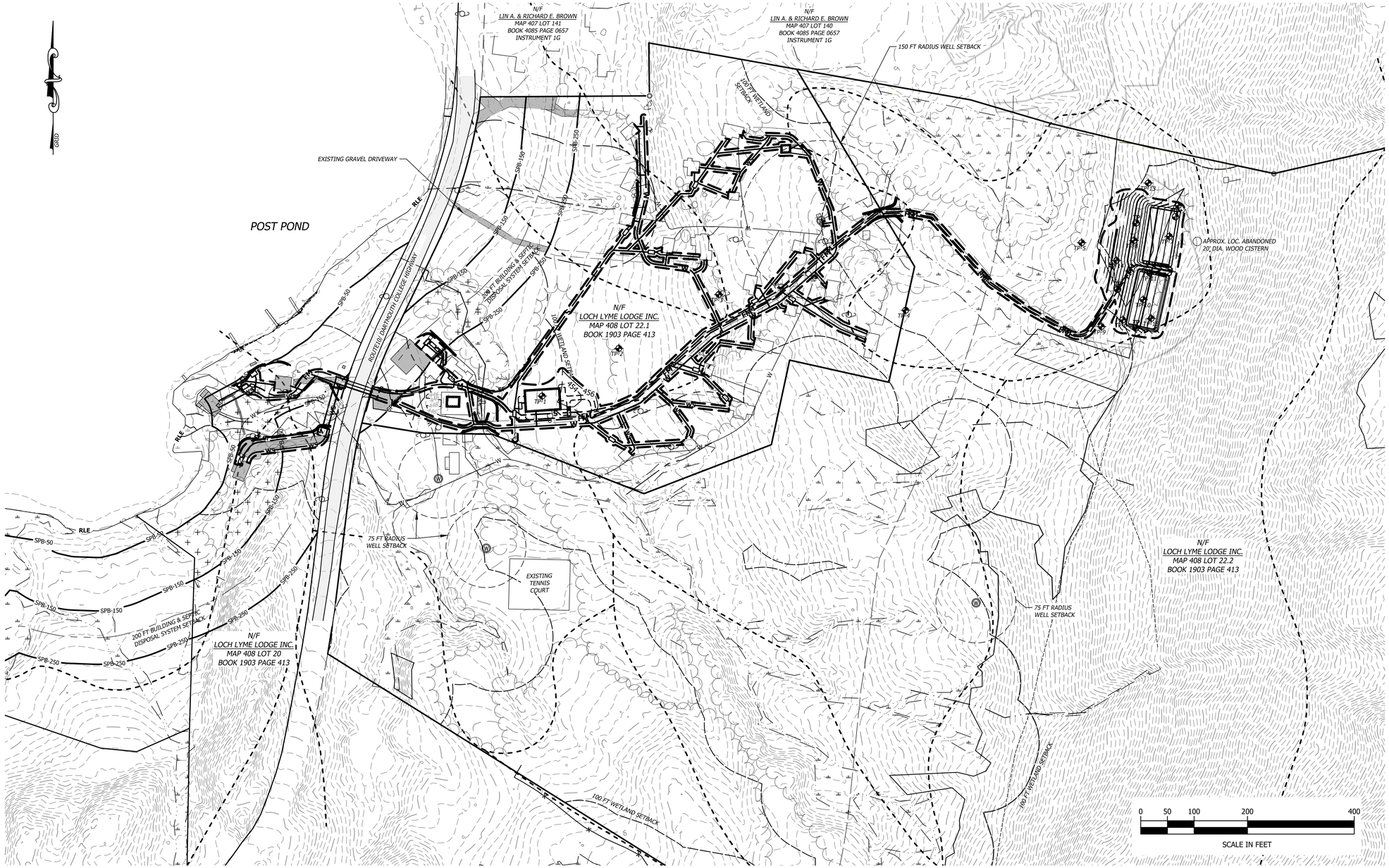

LEGEND

- PROPOSED SEWER LINE (S)
- PROPOSED SEWER FORCEMAIN (FM)
- PROPOSED WATER MAIN (W)
- PROPOSED TREE LINE
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED WATER SHUTOFF
- PROPOSED GATE VALVE

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LOCH LYME LODGE

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LYME, NEW HAMPSHIRE

SITE PLAN OVERVIEW

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STATE OF NEW HAMPSHIRE - CHRISTOPHER J. HERNICK No.15390 - LICENSED PROFESSIONAL ENGINEER

DATE: MAR 2021	PROJECT #: 20819
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SHEET S0

PROPOSED 2000 GAL. SEPTIC TANK (TANK 2)
PROPOSED 1000 GAL. SEPTIC TANK W/ EFFLUENT FILTER (TANK 3)
PROPOSED PUMP TANK (TANK 5)
PROPOSED 1000 GAL. GREASE TRAP (TANK 1)
2" SDR 21 OR 160 PSI POLYETHYLENE FORCEMAIN
EXISTING SEPTIC TANK (APPROX. LOC.) TO BE PUMPED & FILLED W/ SAND OR CRUSHED & USED AS FILL
EXISTING PROPANE TANK TO BE RELOCATED OUT OF THE WETLAND.
EXISTING WETLANDS PERMIT # 2009-00714 FOR SEWER FORCEMAIN CROSSING (EXPIRED). CONSIDER DIRECTIONAL DRILLING.
CONTROL PANEL FOR PUMP 5 TO BE MOUNTED IN WINTER KITCHEN WITH AUDIBLE ALARM & LIGHT.
STAFF HOUSE
SUMMER KITCHEN
PROPOSED TANK FOR STAFF HOUSE 1500 GALLONS (TANK 4)
NEW SHED LOCATION (NO WATER OR SEWER)
BARN & LAUNDRY F.F. ±449.0 L.L. ±442.2 TO BE RELOCATED
PROPOSED FORCEMAIN & EASEMENT FROM LAKEFIELD, LAKESIDE AND BALSAM CABINS.

LODGE INSET PLAN
SCALE" 1"=20'

POST POND
2" SDR35 FORCEMAIN IN 4" SLEEVE UNDER ROAD. DIRECTIONAL BORING TO BE USED. PENDING NHDOT APPROVAL
DIRECTIONAL DRILL LAUNCH PIT (TYPICAL)
PROVIDE VALVE & COMPRESSOR BLOW-OUT CONNECTION BOX (SEE DETAIL SHEET S5)
2" WATER MAIN (TYP)
FLUSH HYDRANT (SEE DETAIL)
4" SDR 35 GRAVITY SEWER FROM CABIN TO TANK 6. MIN. SLOPE= 2%
PROPOSED 8' x 12' PRIVATE BATH-HOUSE W/ SEWER AND WATER SERVICE. TO BE USED BY LODGE GUESTS ONLY
4" SDR 35 GRAVITY SERVICE FROM BATH HOUSE. PROVIDE CLEANOUT BEFORE LINE WYE-TEES INTO GRAVITY SERVICE FROM LAKESIDE CABIN. MIN. SLOPE= 2%.
PROPOSED 1500 GAL. SEPTIC TANK & 1000 GAL. PUMP TANK (TANKS 6 & 6A) FOR LAKESIDE AND LAKEFIELD CABINS. SEE PROFILE SHEET FOR DETAILS
NEMA-4, LOCKABLE CONTROL PANEL FOR PUMP. TO BE MOUNTED ON OUTSIDE W/ AUDIBLE ALARM & LIGHT
LAKESIDE CABIN F.F. ±438.0
LAKEFIELD CABIN F.F. ±434.7
EXISTING SEPTIC DRYWELL TO BE FILLED IN
HORIZONTAL DIRECTIONAL DRILLING TO BE USED FOR UTILITIES UNDER WETLANDS. NO IMPACTS TO WETLANDS.
1" WATER SERVICE (TYP)
WILDE STREAM CHANNEL
TRAVEL DRIVE & PARKING
2" SDR 21 OR 160 PSI POLYETHYLENE FORCEMAIN FROM PUMP CHAMBER. WYE-TEE INTO MAIN LINE BEFORE CROSSING ROAD
PROPOSED 1750 GAL. 2 COMP. SEPTIC TANK (TANK 7). SEE PROFILE SHEET FOR DETAILS
EXISTING SEPTIC DRYWELL TO BE FILLED IN
NEMA-4, LOCKABLE CONTROL PANEL FOR PUMP. TO BE MOUNTED ON OUTSIDE W/ AUDIBLE ALARM & LIGHT
BALSAM CABIN F.F. ±437.1

ROUTE 10 RIGHT-OF WAY
ROUTE10/ DARTMOUTH COLLEGE HIGHWAY
200 FT BUILDING & S.
50' NATURAL WOODLAND BUFFER
250' PROTECTED SHORELAND LINE
100' WETLANDS BUFFER (TYP)
75' PROTECTIVE RADIUS
SEE LODGE INSET PLAN
PROPOSED FORCEMAIN & EASEMENT FROM LAKEFIELD, LAKESIDE AND BALSAM CABINS.
LODGE F.F. ±445.7
SLEEVE FORCEMAIN IN 4" SCH 80 PVC FOR A MIN. DISTANCE OF 10' EITHER SIDE OF WATERLINE CROSSING
1" WATER SERVICE (TYP)
NEW SHED LOCATION
BARN & LAUNDRY F.F. ±449.0 L.L. ±442.3 TO BE RELOCATED
2" WATER MAIN (TYP)
PAVED DRIVE
PROPOSED ACCESS EASEMENT FOR THE BENEFIT OF TAX MAP 408 LOT 22
6" DR11 HDPE CASING PIPES (SEE SECTION DETAIL)
APPROXIMATE LOCATION EXISTING WATERLINE TO LODGE. CONTRACTOR TO VERIFY LOCATION PRIOR TO FORCEMAIN CONSTRUCTION IN THE AREA.
EXISTING 36" RCP CULVERT. INV IN ±434.0 INV OUT ±433.5 EXISTING 1.5" HDPE WATERLINE RUNS THRU CULVERT TO FEED OTHERSIDE OF ROAD
HORIZONTAL DIRECTIONAL DRILLING TO BE USED FOR UTILITIES UNDER WETLANDS. NO IMPACTS TO WETLANDS.
EXISTING WELL SERVICES YEAR ROUND HOME ONLY
75 FT RADIUS WELL SETBACK
MATCHLINE - SEE SHEET 2
PROPOSED 4" SDR 35 PVC SEWER EFFLUENT LINE. PROVIDE CLEANOUTS AT 100' MAX SEPARATION. MIN. SLOPE 1%, MIN. MIN. DEPTH OF COVER 4'.
100 FT WETLAND SETBACK
PROVIDE HAY BALE DAMS IN EXCAVATED TRENCH FOR EROSION CONTROL, SPACE AT 50' MAX. (TYP)
N/F LOCH LYME LODGE INC. MAP 408 LOT 22.1 BOOK 1903 PAGE 413
REGRADE AS NECESSARY FOR ENTRANCE TO BARN: REFER TO ARCHITECTURAL PLANS
PROPOSED 2~ 2.5" SDR21 OR SCH 40 PVC FORCEMAINS TO LEACH FIELDS. TRENCH TO BE MIN. 4' OFF EDGE OF EXISTING DRIVEWAY, DEPTH AT 5'-6' OR INSULATED. RUN 4" PVC GRAVITY LINE IN SAME TRENCH, IF POSSIBLE.
PROPOSED 2000 GAL. SEPTIC TANK FROM BARN (TANK 17)
4" SDR35 PVC GRAVITY LINE MIN. SLOPE 2%
PROPOSED BARN BASEMENT 446.5± FIRST FLOOR 457.50±
PROPOSED 2000 GAL MAIN PUMP CHAMBER (TANK 8) COLLECTS ALL EFFLUENT AND PUMPS TO EDA. SEE SHEETS S5 AND S6 FOR PUMP & DETAIL INFORMATION.
PROPOSED 1500 GAL SEPTIC TANK (TANK 9)
3" WATER MAIN (TYP)
ELECTRIC SERVICE TO BE TRENCHED FROM UTILITY POLE. AUXILIARY POWER TO BE FROM A PORTABLE GENERATOR, HOUSED IN THE BARN AND PULLED AND CONNECTED WHEN NECESSARY.
POST MOUNTED NEMA-4, LOCKABLE CONTROL PANEL WITH POWER SHUT-OFF, LIGHTED AND AUDIBLE ALARM. A REMOTE LIGHTED ALARM SHALL BE INSTALLED IN THE LODGE'S SUMMER KITCHEN.
EXISTING BUILDINGS TO BE RELOCATED
NOTWOOD
SHED
CHILDRENS PLAY HOUSE

SITE PLAN
SCALE: 1"=30'

LEGEND
- PROPOSED SEWER LINE
- PROPOSED SEWER FORCEMAIN
- PROPOSED WATER MAIN
- PROPOSED TREE LINE
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED WATER SHUTOFF
- PROPOSED GATE VALVE

NOTES:
1. REFER TO SHEETS S5, & S6 FOR ALL SEPTIC TANK, SEWERLINE, FORCEMAIN & PUMP CHAMBER DETAILS.
2. REFER TO SHEET S7 FOR ALL DESIGN NOTES, PUMP DETAILS & LEACH FIELD DETAILS.
3. WETLAND DELINEATION BY BEAVER TRACKS, LLC WAS CHECKED BY RAY LOBDELL. BEAVER TRACKS REINVESTIGATED SECTIONS AS DIRECTED BY RAY LOBDELL.

PRELIMINARY PRICING SET
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0 15 30 60 120
SCALE IN FEET

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STATE OF NEW HAMPSHIRE — CHRISTOPHER J. HERNICK No.15390 LICENSED PROFESSIONAL ENGINEER — Christopher J. Hernick

DATE:	PROJECT #:
MAR 2021	20819
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CJH	CJH
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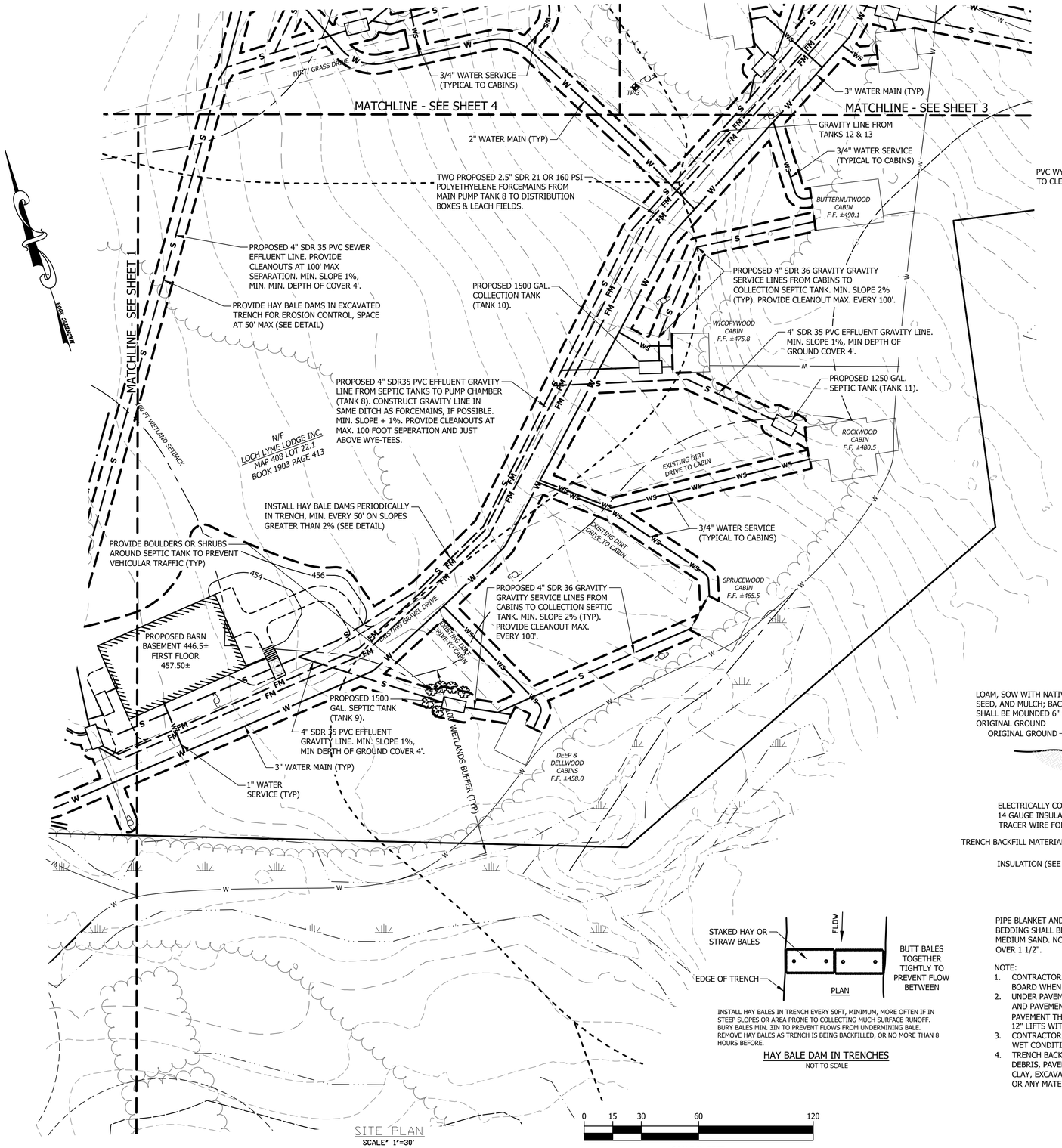
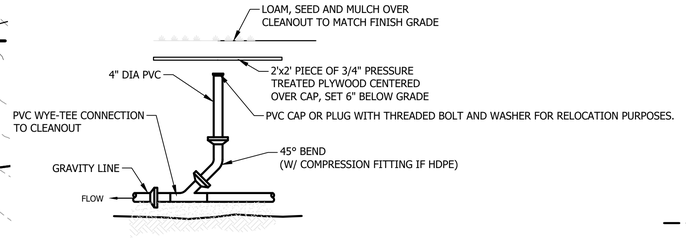
SHEET S1



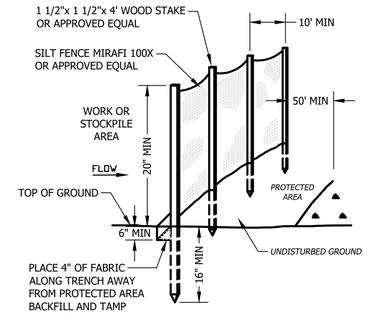


NOTE: PLACE BOULDERS AROUND THE AREA OF CLEANOUT RISER IF CLEANOUT IS IN AN AREA SUBJECT TO VEHICLE TRAFFIC.

CLEANOUT DETAIL-GRAVITY LINES
NOT TO SCALE

LEGEND

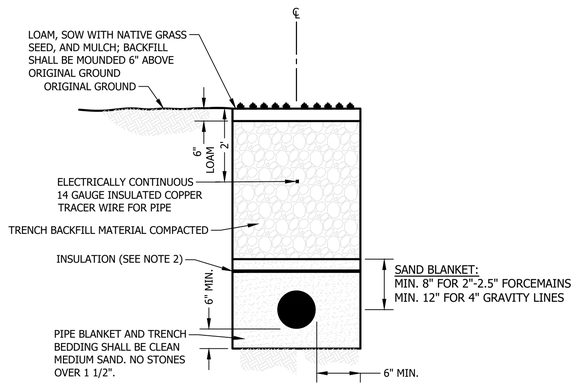
- S — PROPOSED SEWER LINE
- FM — PROPOSED SEWER FORCEMAIN
- W — PROPOSED WATER MAIN
- PROPOSED TREE LINE
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED WATER SHUTOFF
- PROPOSED GATE VALVE



SILT FENCE
NOT TO SCALE

INSTALL HAY BALES IN TRENCH EVERY 50FT, MINIMUM, MORE OFTEN IF IN STEEP SLOPES OR AREA PRONE TO COLLECTING MUCH SURFACE RUNOFF. BURY BALES MIN. 3IN TO PREVENT FLOWS FROM UNDERMINING BALE. REMOVE HAY BALES AS TRENCH IS BEING BACKFILLED, OR NO MORE THAN 8 HOURS BEFORE.

HAY BALE DAM IN TRENCHES
NOT TO SCALE



NOTE:
1. CONTRACTOR SHALL INSULATE PROPOSED SEWER PIPES WITH 2" RIGID FOAM BOARD WHEN MINIMUM PIPE DEPTHS ARE NOT MET.
2. UNDER PAVEMENT TRENCH CONSTRUCTION SHALL INCLUDE GRAVEL BASE COURSE AND PAVEMENT CONSISTENT WITH EXISTING MATERIAL OR 1' OF GRAVEL AND PAVEMENT THICKNESS OF 2 ½", WHICHEVER IS GREATER. COMPACTION TO BE IN 12" LIFTS WITH A PLATE COMPACTOR.
3. CONTRACTOR TO CONTACT ENGINEER FOR GUIDANCE IF UNSUITABLE MATERIAL OR WET CONDITIONS ARE ENCOUNTERED.
4. TRENCH BACKFILL MATERIAL SHALL BE EXCAVATED TRENCH MATERIAL EXCLUDING DEBRIS, PAVEMENT, ORGANIC MATTER, TOPSOIL, WET OR SOFT MUCK, PEAT OR CLAY, EXCAVATED LEDGE MATERIAL, ROCKS OVER 6" IN THE LARGEST DIMENSION, OR ANY MATERIAL NOT APPROVED BY THE ENGINEER.

TYPICAL SEWER TRENCH
NOT TO SCALE

PRELIMINARY PRICING SET
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GENERAL NOTES:

1. REFER TO SHEETS S5, & S6 FOR ALL SEPTIC TANK, SEWERLINE, FORCEMAIN & PUMP CHAMBER DETAILS.
2. REFER TO SHEET S7 FOR ALL DESIGN NOTES, PUMP DETAILS & LEACH FIELD DETAILS.
3. WETLAND DELINEATION BY BEAVER TRACKS, LLC WAS CHECKED BY RAY LOBDELL. BEAVER TRACKS REINVESTIGATED SECTIONS AS DIRECTED BY RAY LOBDELL.

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SITE PLAN

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STATE OF NEW HAMPSHIRE — CHRISTOPHER J. HERNICK No.15390 — PROFESSIONAL ENGINEER — LICENSED

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SHEET S2

DATE OF PRINT
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LEGEND

- S — PROPOSED SEWER LINE
- FM — PROPOSED SEWER FORCEMAIN
- W — PROPOSED WATER MAIN
- PROPOSED TREE LINE
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED WATER SHUTOFF
- PROPOSED GATE VALVE

150 FT RADIUS

NH GRID

PROTECTIVE WELL RADIUS EASEMENT

FLUSH HYDRANT (TYP)

NEW LOCATION FOR 'NOTWOOD'

PROPOSED SEWER & ACCESS EASEMENT "B"

PROTECT WETLAND SWALE WITH SILT FENCE WHILE TRENCHING UNDER CULVERT

EXISTING 12" HDPE CULVERT
INV IN ±503.8
INV OUT ±503.3
FORCEMAINS TO TRENCH UNDER EXISTING CULVERT

150' PROTECTIVE WELL RADIUS

EXISTING WELL OVERFLOW LINE

EXISTING WELL EPA ID# 1438010, SERVICING ALL CABINS, SEASONAL USE ONLY

WELL HOUSES

2" WATER MAIN (TYP)

CONNECT TO EXISTING WATER SYSTEM

3" WATER MAIN (TYP)

EXISTING 1.5" HDPE OR GALV. STEEL WATERLINE AT OR JUST BELOW GROUND SURFACE (SEASONAL USE ONLY) (TYP)

WOOD SHED

WILDWOOD CABIN F.F. ±499.3

GRAVEL DRIVE

MATCHLINE - SEE SHEET 4

PROPOSED 4" SDR 35 SEPTIC SERVICE LINES FROM CABIN TO COLLECTION TANK. MIN. SLOPE =2% (TYP). PROVIDE CLEANOUT MAX. 100' SPACING.

MAPLEWOOD CABIN F.F. ±488.2

PROPOSED 1500 GAL. COLLECTION SEPTIC TANK (TANK 13)

TP-3

INSTALL HAY BALE DAMS PERIODICALLY IN TRENCH. MIN. EVERY 50' ON SLOPES GREATER THAN 2% (SEE DETAIL - SHEET S2)

SMALL BOULDERS OR BUSHES PLACED AROUND SEPTIC TANKS TO PREVENT DAMAGE FROM WEIGHT OF VEHICLES (TYP)

PROPOSED 4" SDR 35 SEPTIC EFFLUENT SERVICE LINES FROM COLLECTION TANKS TO MAIN PUMP CHAMBER. CONSTRUCT IN SAME TRENCH AS FORCEMAINS, IF POSSIBLE. PROVIDE CLEANOUTS AT MAX. 100' SEPERATION. MIN. SLOPE =1%

TWO PROPOSED 2.5" SDR 21 OR 160 PSI POLYETHYLENE FORCEMAINS FROM MAIN PUMP TANK (TANK 8) TO DISTRIBUTION BOXES AND LEACH FIELDS. BURY 5' MIN. DEPTH OR INSULATE WITH 2" BLUEBOARD.

APPLEWOOD CABIN F.F. ±507.5

3" WATER MAIN (TYP)

PROPOSED 2000 GAL. COLLECTION SEPTIC TANK (TANK 12)

CHERRYWOOD CABIN F.F. ±496.0

FERNWOOD CABIN F.F. ±516.0

PROPOSED 4" SDR 35 SEPTIC SERVICE LINES FROM CABIN TO COLLECTION TANK. MIN. SLOPE =2% (TYP). PROVIDE CLEANOUT MAX. 100' SPACING.

MATCHLINE - SEE SHEET 2

TWO PROPOSED 2.5" SDR 21 OR 160 PSI POLYETHYLENE FORCEMAINS FROM MAIN PUMP TANK (TANK 8) TO DISTRIBUTION BOXES AND LEACH FIELDS. BURY 5' MIN. DEPTH OR INSULATE WITH 2" BLUEBOARD. SECOND FOECEMAIN TO BE RUN IN COMMON TRENCH, CAP ON BOTH ENDS FOR FUTURE USE.

175' SIDE GRADIENT NITRATE SETBACK (EASEMENT FROM ADJACENT LOT)

TBM 100 (HEI)
SPIKE IN TREE ELEV. 568.82

TP-H3
(HEI)
ELEV.
547.93

TP-H2
(HEI)
ELEV.
562.79

APPROX. LOC. ABANDONED 20' DIA. WOOD CISTERN

TBM 55
PK NAIL SET IN ROOT OF 12" PINE
ELEV. 543.00

100' WETLAND BUFFER

50' UPSLOPE NITRATE SETBACK

TBM 52
PK NAIL SET IN ROOT OF 30" OAK
ELEV. 563.12

350' DOWNGRADIENT NITRATE SETBACK

LEACH FIELD #2

LEACH FIELD #1

SEE SHEET S7 FOR D-BOX & EDA DETAILS

TBM 54
PK NAIL SET IN ROOT OF 12" PINE
ELEV. 535.11

TBM 52
PK NAIL SET IN ROOT OF 18" OAK
ELEV. 559.95

TP-H4
(HEI)
ELEV.
544.40

TBM 105
SPIKE SET IN ROOT OF TREE ELEV. 559.42

SEE SHEET TP1 FOR TEST PIT DATA

GRAVEL DRIVE

TP-H1
(HEI)
ELEV.
554.46

NOTES:

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3. WETLAND DELINEATION BY BEAVER TRACKS, LLC WAS CHECKED BY RAY LOBDELL. BEAVER TRACKS REINVESTIGATED SECTIONS AS DIRECTED BY RAY LOBDELL.

0 15 30 60 120
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SHEET S3

LEGEND

- PROPOSED SEWER LINE
- PROPOSED SEWER FORCEMAIN
- PROPOSED WATER MAIN
- PROPOSED TREE LINE
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED WATER SHUTOFF
- PROPOSED GATE VALVE

NOTES:

1. REFER TO SHEETS S5, & S6 FOR ALL SEPTIC TANK, SEWERLINE, FORCEMAIN & PUMP CHAMBER DETAILS.
2. REFER TO SHEET S7 FOR ALL DESIGN NOTES, PUMP DETAILS & LEACH FIELD DETAILS.
3. WETLAND DELINEATION BY BEAVER TRACKS, LLC WAS CHECKED BY RAY LOBDELL. BEAVER TRACKS REINVESTIGATED SECTIONS AS DIRECTED BY RAY LOBDELL.

0 15 30 60 120

SCALE IN FEET

N/F
LIN A. & RICHARD E. BROWN
MAP 407 LOT 141
BOOK 4085 PAGE 0657
INSTRUMENT 1G

100' WETLAND SETBACK

PLAY AREA

FLUSH HYDRANT (SEE DETAIL)

3/4" WATER SERVICE (SEE DETAIL)

PROPOSED 4" SDR 35 PVC SERVICE GRAVITY LINE TO TANK 14. MIN. SLOPE = 2%. PROVIDE CLEANOUTS AT MAX. 100' SPACING

BEECHWOOD CABIN F.F. ±490.8

PARKING AREA

BLOW-OFF HYDRANT (SEE DETAIL)

150' PROTECTIVE YELL RADIUS

1" WATER SERVICE (SEE DETAIL)

PARKING AREA

KNOLLWOOD CABIN F.F. ±464.0

3/4" WATER SERVICE (TYPICAL FOR CABINS)

PINE & POPLAR WOOD CABINS F.F. ±482.7

PROPOSED 4" SDR 35 PVC SERVICE GRAVITY LINE TO TANK 13. MIN. SLOPE = 2%. PROVDE CLEANOUTS AT MAX. 100' SPACING

2" WATER MAIN (TYP)

BIRCHWOOD CABIN F.F. ±489.7

VERY BOULDERY AREA

PROPOSED 2500 GAL. COLLECTION SEPTIC TANK (TANK 14)

LARCH & LAURELWOOD CABINS F.F. ±458.2

EXISTING 1.5" HDPE OR GALV. STEEL WATERLINE AT OR JUST BELOW GROUND SURFACE (SEASONAL USE ONLY) (TYP)

PROVIDE CLEANOUTS AT MAX. 100' SPACING (TYP)

MATCHLINE SEE SHEET 3

LARGE BOULDER (TYP)

3/4" WATER SERVICE (TYPICAL FOR CABINS)

IRON WOOD & BASSWOOD CABINS F.F. ±482.2

GLENWOOD CABIN F.F. ±456.07

EDGEWOOD CABIN F.F. ±470.6

PROPOSED 4" SDR 35 PVC SERVICE GRAVITY LINE TO TANK 16. MIN. SLOPE = 2%. PROVDE CLEANOUTS AT MAX. 100' SPACING

PROPOSED 2000 GAL. COLLECTION SEPTIC TANK (TANK 15)

SMALL BOULDERS OR BUSHES PLACED AROUND SEPTIC TANKS TO PREVENT DAMAGE FROM WEIGHT OF VEHICLES (TYP)

PROPOSED 2000 GAL. COLLECTION SEPTIC TANK (TANK 16)

TP-9

MATCHLINE SEE SHEET 1

MATCHLINE SEE SHEET 2

PROPOSED 4" SDR 35 PVC EFFLUENT GRAVITY LINES. MIN. 1% SLOPE. PROVIDE CLEANOUTS EVERY 100' SPACING. MINIMUM BURIAL DEPTH THRU FIELDS 4' FOR PROTECTION FROM VEHICULAR WEIGHT.

PROPOSED 4" SDR 35 PVC EFFLUENT GRAVITY LINE TO MAIN PUMP CHAMBER. MIN. 1% SLOPE. PROVIDE CLEANOUTS EVERY 100' SPACING. MINIMUM BURIAL DEPTH THRU FIELDS 4' FOR PROTECTION FROM VEHICULAR WEIGHT.

N.H. ROUTE 10

NH GRID

250' PROTECTED SHORELAND

150' WOODLAND BUFFER

100' WETLAND BUFFER

POST POND

GRAVEL DRIVE

DIRT DRIVE

SEPTIC DISPOSAL SYSTEM SETBACK

SRB-150

SRB-250

RLE

FM

DATE OF PRINT
MARCH 18 2021
HORIZONS ENGINEERING

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NEWPORT VT • LITTLETON NH • NEW LONDON NH
SHARON VT • KENNEBUNK ME • CONWAY NH

LOCH LYME LODGE

UTILITY IMPROVEMENT PROJECT

LYME, NEW HAMPSHIRE

SITE PLAN

NO.	DATE	REVISION DESCRIPTION	ENG	DWG

STATE OF NEW HAMPSHIRE — CHRISTOPHER J. HERNICK No.15390 LICENSED PROFESSIONAL ENGINEER — Christopher J. Hernick

DATE:	PROJECT #:
MAR 2021	20819
ENGIN'D BY:	DRAWN BY:
CJH	CJH
CHECK'D BY:	ARCHIVE #:
WTD	H-___

SHEET S4

KEY TANK ELEVATIONS & PUMP CHAMBER SETTINGS
WEST SIDE ROUTE 10 & LODGE COMPLEX

GREASE TRAP TANK 1
PROPOSED TANK INLET = 440.1
PROPOSED TANK OUTLET = 439.9

SEPTIC TANK 2
PROPOSED SEPTIC TANK INLET = 439.8
PROPOSED SEPTIC TANK OUTLET = 439.6

SEPTIC TANK 3
PROPOSED SEPTIC TANK INLET = 439.5
PROPOSED SEPTIC TANK OUTLET = 439.3

SEPTIC TANK 4
PROPOSED SEPTIC TANK INLET = 440.7
PROPOSED SEPTIC TANK OUTLET = 440.5

PUMP TANK 5
PROPOSED TANK INLET = 439.1
PROPOSED TANK OUTLET = 438.9
HIGHWATER ALARM = 437.9
PUMP ON = 437.4
PUMP OFF = 435.9
DOSE RATE = 30 GPM
DOSE VOLUME = 355 GAL
PUMP CHAMBER INSIDE BOTTOM = 434.9

SEPTIC TANK 6
PROPOSED SEPTIC TANK INLET = 429.0
PROPOSED SEPTIC TANK OUTLET = 428.7

PUMP TANK 6a
PROPOSED TANK INLET = 428.6
PROPOSED TANK OUTLET = 428.3
HIGHWATER ALARM = 426.9
PUMP ON = 426.4
PUMP OFF = 425.6
DOSE RATE = 20 GPM
DOSE VOLUME = 140 GAL
PUMP CHAMBER INSIDE BOTTOM = 424.2

COMBINATION TANK 7
PROPOSED TANK INLET = 434.7
PROPOSED TANK OUTLET = 434.5
HIGHWATER ALARM = 433.1
PUMP ON = 432.3
PUMP OFF = 432.6
DOSE RATE = 20 GPM
DOSE VOLUME = 112 GAL
PUMP CHAMBER INSIDE BOTTOM = 430.2

DIG SAFE — UTILITIES UNDERGROUND · PLANT DAMAGE PREVENTION SYSTEM

CONTACT DIG SAFE 72 HOURS
PRIOR TO CONSTRUCTION

THE LOCATION OF ANY UTILITY INFORMATION SHOWN ON THIS PLAN IS APPROXIMATE. HORIZONS ENGINEERING INC. MAKES NO CLAIM TO THE ACCURACY OR COMPLETENESS OF UTILITIES SHOWN. 72 HOURS PRIOR TO ANY EXCAVATION ON SITE, THE CONTRACTOR SHALL CONTACT DIG-SAFE AT 1-888-DIG-SAFE.

FLOW DATA WEST SIDE ROUTE 10 & LODGE COMPLEX

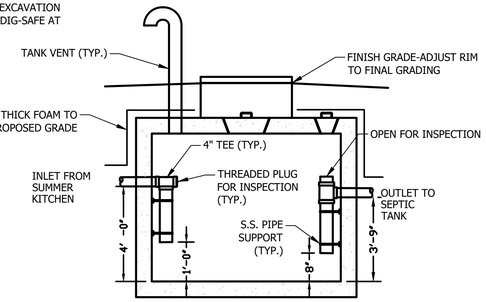
DESIGN CRITERIA:

	Name	Capacity		Design Flow	GPD	
Lodge area	Yr-round Caretaker	2	bedroom	150	300	
	Lodging rooms	7	rooms (1dbl)	100	700	
	Restaurant	20	seats	40	800	
		4	employees	35	140	
	Barn	4	person capacity	75	300	
	Staff Cabin	6	person capacity	50	300	subtotal=
	Laundry	1	non-comm mach.	300	300	2840
cabins	Lakeside	5	person capacity	75	375	
	Lakefield	5	person capacity	gpd/person	375	subtotal=
	Balsam	6	person capacity	"	450	1200

FLOW DATA EAST SIDE ROUTE 10

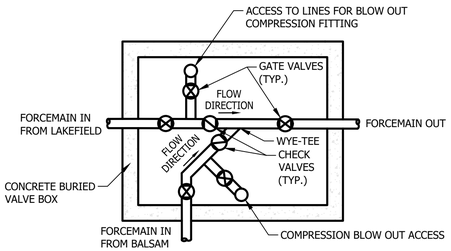
		Cabin Name	Capacity	Design Flow	GPD	
Phase 2	No Kitchen	Applewood	5	50	250	
		Beechwood	5	gpd/person	250	
		Fernwood	5	"	250	
		Iron&Basswood	8	"	400	
		Notwood	3	"	150	
		Pine&Poplarwood	3	"	150	
		*Rockwood	6	"	300	subtotal=
		Wildwood	3	"	150	1900
	With Kitchen	Butternutwood	5	75	375	
		Maplewood	5	gpd/person	375	
		Birchwood	3	"	225	
		Knollwood	3	"	225	
		Larch&Laurelwood	6	"	450	
		Glenwood	3	"	225	
		Edgewood	3	"	225	
		*Wicopywood	3	"	225	
		*Sprucewood	4	"	300	
		Cherrywood	3	"	225	subtotal=
		*Deep&Dellwood	4	"	300	3150

Phase 1 total =	**4040 gpd**
Phase 2 total =	**5050 gpd**
Leach fields sized to accommodate Phase 1 & Phase 2	
Total Proposed Load =	**9390 gpd**
(includes ±300gpd of infiltration from gravity lines)	

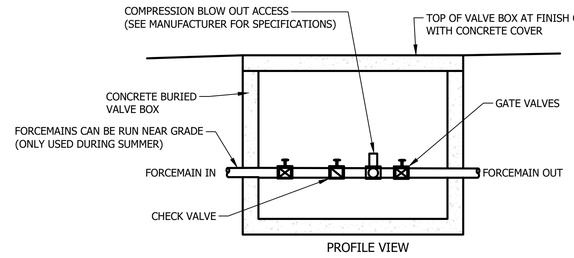


NOTES:
1. THE GREASE TRAP SHALL BE A 1000 GALLON SEPTIC TANK WITH CENTERED 30" OPENING AND SMALLER OUTLET ACCESS COVER.
2. THE EXTERIOR OF THE BOX SHALL RECEIVE TWO COATS OF ASPHALTIC SEAL COATING AT THE FACTORY.
3. JOINTS BETWEEN THE CONCRETE SECTIONS SHALL BE SEALED BY BUTYL-MASTIC (AASHTO W-198).
4. INTERIOR PIPING SHALL BE RESTRAINED WITH STAINLESS STEEL VERTICAL PIPE SUPPORTS.
5. THE OIL SEPARATOR CHAMBER SHALL BE FILLED WITH WATER AND SUBJECTED TO A 24 HOUR HYDROSTATIC LEAKAGE TEST.
6. NO LEAKAGE WILL BE ALLOWED DURING THE TEST PERIOD. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE A WATERTIGHT STRUCTURE.
7. INTERIOR PIPING SHALL BE PVC SCH 40. FITTINGS SHALL BE SOLVENT WELD TYPE.

GREASE TRAP DETAIL



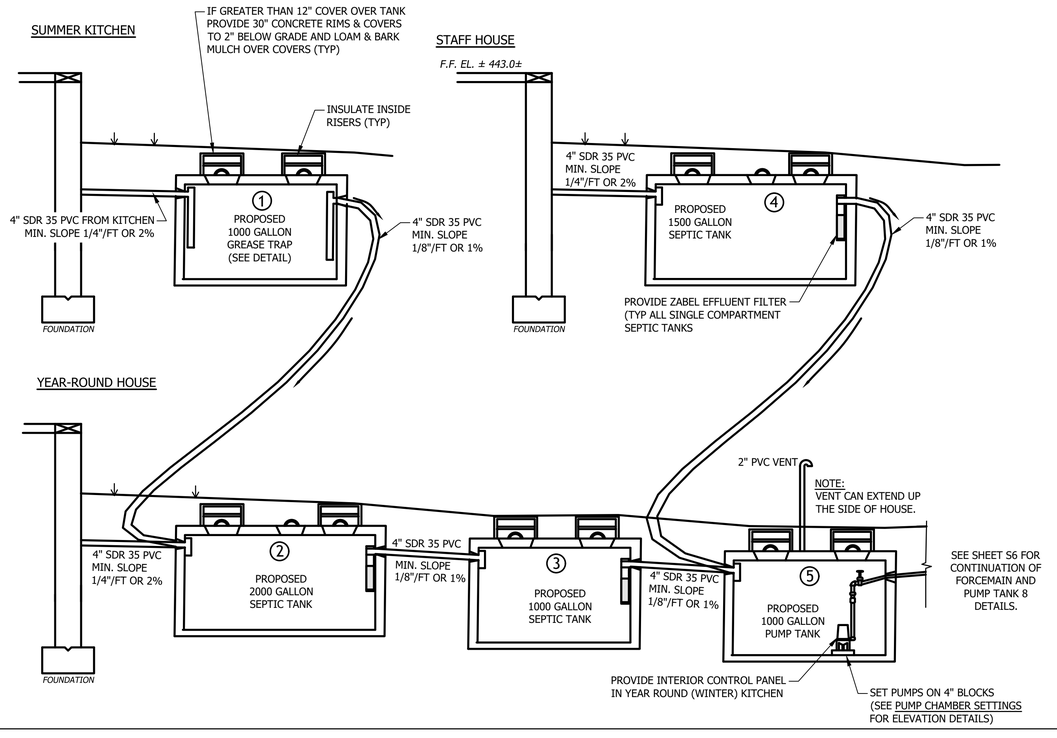
PLAN VIEW



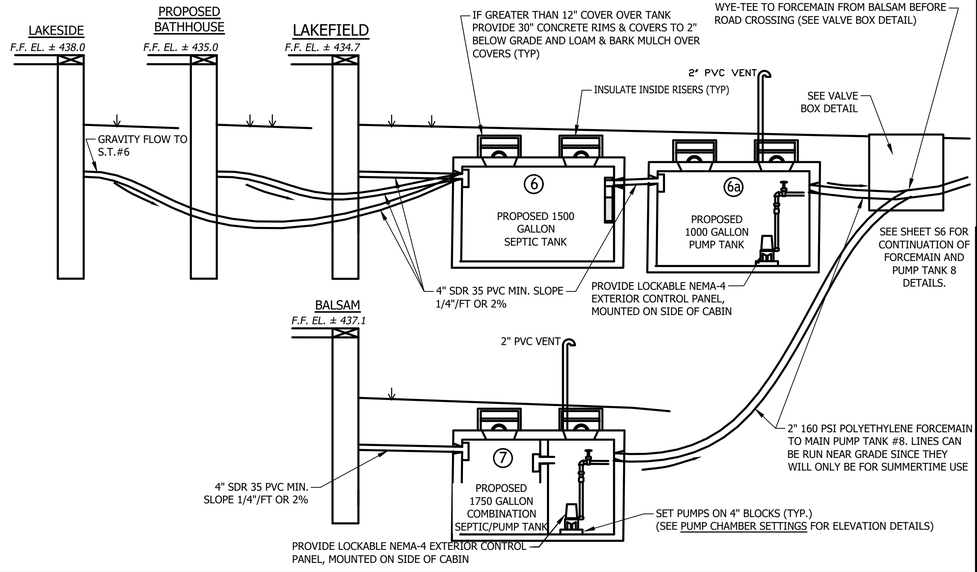
PROFILE VIEW

VALVE BOX DETAIL

LODGE COMPLEX PROFILES



WEST SIDE OF ROUTE 10



DATE OF PRINT
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HORIZONS ENGINEERING

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NEWPORT VT • LITTLETON NH • NEW LONDON NH
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LOCH LYME LODGE

UTILITY IMPROVEMENT PROJECT

LYME, NEW HAMPSHIRE

SITE PLAN

NO.	DATE	REVISION DESCRIPTION	ENG	DWG

STATE OF NEW HAMPSHIRE · CHRISTOPHER J HERNICK No.15390 · LICENSED PROFESSIONAL ENGINEER

DATE: MAR 2021	PROJECT #: 20819
ENGIN'D BY: CJH	DRAWN BY: CJH
CHECK'D BY: WTD	ARCHIVE #: H-___

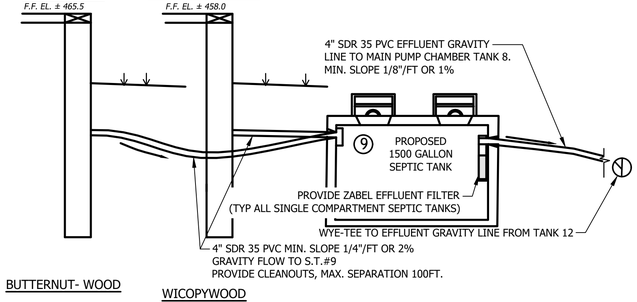
SHEET S5

SPRUCEWOOD

F.F. EL. ± 465.5

DEEP & DELLWOOD

F.F. EL. ± 458.0

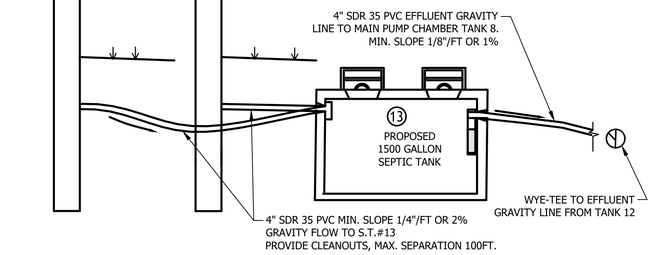


WILDWOOD

F.F. EL. ± 499.3

MAPLEWOOD

F.F. EL. ± 488.2



KNOLLWOOD

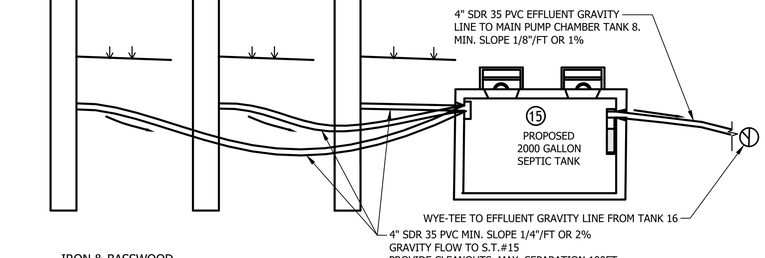
F.F. EL. ± 464.0

LARCH & LAUREL WOOD

F.F. EL. ± 458.2

GLENWOOD

F.F. EL. ± 456.7

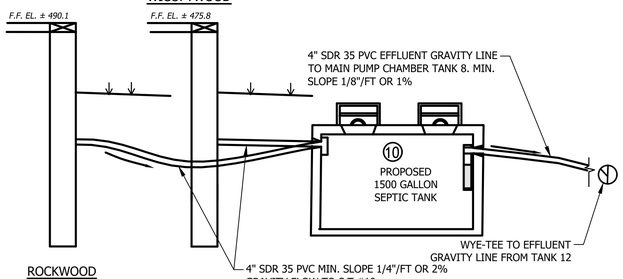


BUTTERNUT- WOOD

F.F. EL. ± 490.1

WICOPYWOOD

F.F. EL. ± 475.8



NOTWOOD

F.F. EL. ± 495.0

BEECHWOOD

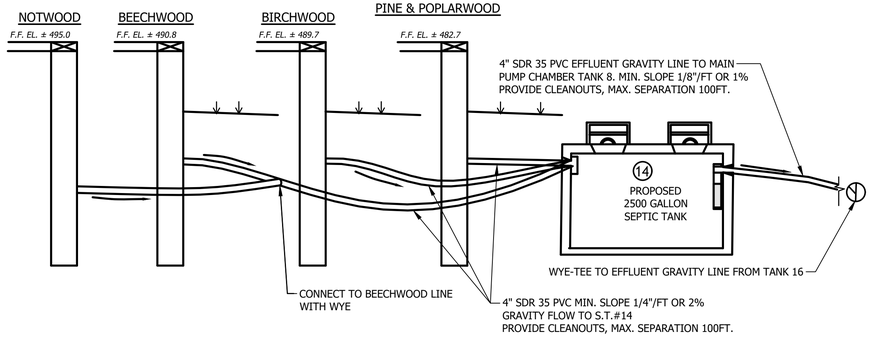
F.F. EL. ± 490.8

BIRCHWOOD

F.F. EL. ± 489.7

PINE & POPLARWOOD

F.F. EL. ± 482.7

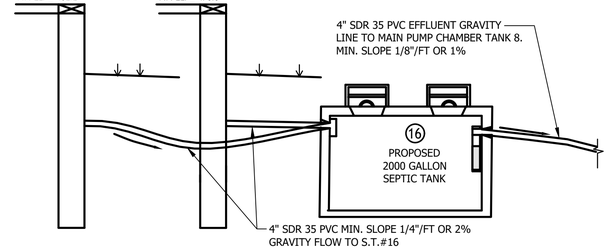


IRON & BASSWOOD

F.F. EL. ± 482.2

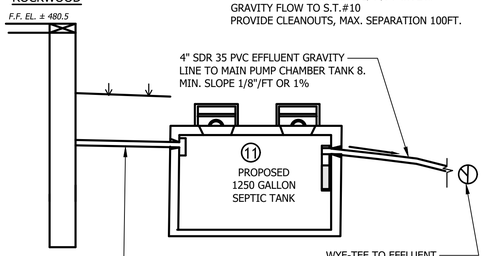
EDGEWOOD

F.F. EL. ± 470.6



ROCKWOOD

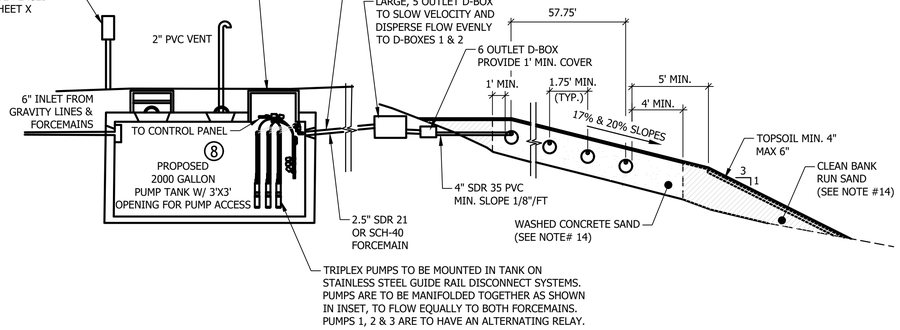
F.F. EL. ± 480.5



PEDESTAL MOUNTED, LOCKABLE NEMA-4 CONTROL PANEL WITH AUDIBLE AND LIGHTED ALARMS AND POWER SHUT OFF. PROVIDE A REMOTE LIGHTED ALARM INSIDE THE LODGE. PROVISIONS MADE FOR PORTABLE GENERATOR TO BE PLACED ONLINE IN THE EVENT OF A POWER FAILURE. SEE SHEET X FOR GENERATOR DETAILS.

2' HIGH, 4' DIAMETER MANHOLE RISER WITH CONCRETE COVER SET FOR BILCO ALUMINUM 3'x3' HINGED ACCESS COVER.

FORCEMAIN BURY DEPTH: MAINTAIN MIN. 4' CROSS COUNTRY OR MIN. 5.5' UNDER ROADS. INSULATE IN AND OUT OF TANKS AND AT AREAS WHERE MINIMUM DEPTH CANNOT BE MET.



MAIN PUMP CHAMBER AND D-BOX ELEVATIONS:

DUPLEX PUMP TANK 8
PROPOSED TANK INLET = 444.0
PROPOSED TANK OUTLET = 443.7
1ST PUMP ON = 442.7
2ND PUMP ON = 443.0
3RD PUMP ON & HIGHWATER ALARM = 443.2
PUMP OFF = 441.2
DOSE RATE = 30 GPM
DOSE VOLUME = 770 GAL
PUMP CHAMBER INSIDE BOTTOM = 439.7

MAIN DISTRIBUTION BOX
PROPOSED INLET = 558.6
PROPOSED OUTLETS TO D-BOXES = 558.4

DISTRIBUTION BOX 1
PROPOSED TANK INLET = 558.3
PROPOSED TANK OUTLETS = 558.2
INVERT AT ENVIRO SEPTIC PIPE = 558.1
(AT HIGHEST PIPE IN HIGHEST FIELD 1)

DISTRIBUTION BOX 2
PROPOSED TANK INLET = 558.3
PROPOSED TANK OUTLETS = 558.2
INVERT AT ENVIRO SEPTIC PIPE = 556.3
(AT HIGHEST PIPE IN HIGHEST FIELD 2)

FERNWOOD

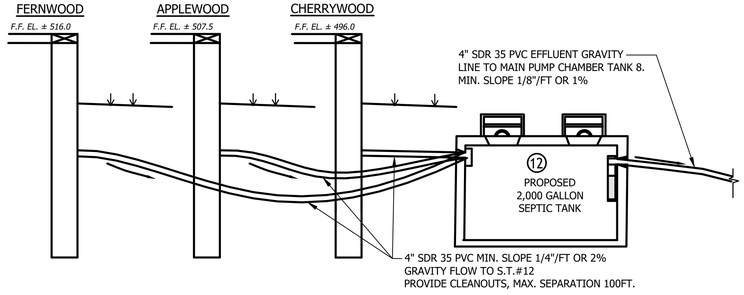
F.F. EL. ± 516.0

APPLEWOOD

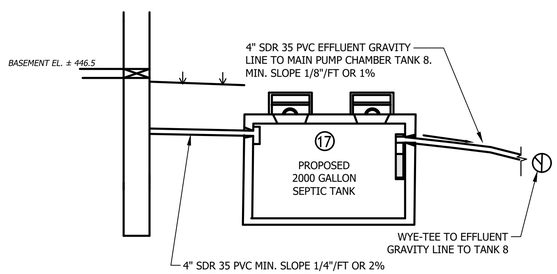
F.F. EL. ± 507.5

CHERRYWOOD

F.F. EL. ± 496.0

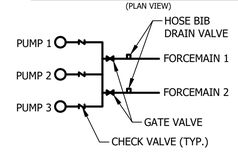


BARN



PUMP TO FORCEMAIN MANIFOLD SYSTEM

(PLAN VIEW)



NOTES:
1) THE INTENTION IS ONLY ONE FORCEMAIN TO BE USED FOR EFFLUENT TRANSFER TO DISTRIBUTION BOX. THE OTHER LINE IS TO BE PLUMBED BUT TURNED OFF. THE SECOND FORCEMAIN TO BE UTILIZED WHEN AND IF THE FIRST LINE IS UNUSABLE FROM A LEAK, FREEZES, GETS PINCHED, ETC.
2)HOSE BIB DRAIN VALVE TO ALLOW FORCEMAIN TO BE MANUALLY DRAINED INTO PUMP TANK.
3) FORCEMAIN TO NOT DRAIN BACK TO PUMP CHAMBER AFTER EACH PUMPING CYCLE. MANUALLY DRAIN LINE PRIOR TO WINTER EACH YEAR TO PREVENT FREEZE UP IN THE FORCEMAINS.

KEY TANK ELEVATIONS:
EAST SIDE ROUTE 10

SEPTIC TANK 9
PROPOSED SEPTIC TANK INLET = 451.0
PROPOSED SEPTIC TANK OUTLET = 450.7

SEPTIC TANK 10
PROPOSED SEPTIC TANK INLET = 466.7
PROPOSED SEPTIC TANK OUTLET = 466.4

SEPTIC TANK 11
PROPOSED SEPTIC TANK INLET = 474.4
PROPOSED SEPTIC TANK OUTLET = 474.1

SEPTIC TANK 12
PROPOSED SEPTIC TANK INLET = 492.1
PROPOSED SEPTIC TANK OUTLET = 491.8

SEPTIC TANK 13
PROPOSED SEPTIC TANK INLET = 484.1
PROPOSED SEPTIC TANK OUTLET = 483.8

SEPTIC TANK 14
PROPOSED SEPTIC TANK INLET = 478.3
PROPOSED SEPTIC TANK OUTLET = 478.0

SEPTIC TANK 15
PROPOSED SEPTIC TANK INLET = 453.7
PROPOSED SEPTIC TANK OUTLET = 453.4

SEPTIC TANK 16
PROPOSED SEPTIC TANK INLET = 466.5
PROPOSED SEPTIC TANK OUTLET = 466.2

SEPTIC TANK 17
PROPOSED SEPTIC TANK INLET = 444.37
PROPOSED SEPTIC TANK OUTLET = 444.12

DIG SAFE
UTILITIES UNDERGROUND PLANT DAMAGE PREVENTION SYSTEM

CONTACT DIG SAFE 72 HOURS PRIOR TO CONSTRUCTION

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LOCH LYME LODGE

UTILITY IMPROVEMENT PROJECT

LYME, NEW HAMPSHIRE

WASTEWATER COLLECTION PROFILES AND DETAILS

NO.	DATE	REVISION DESCRIPTION	ENG	DWG

STATE OF NEW HAMPSHIRE
CHRISTOPHER J HERNICK No.15390 LICENSED PROFESSIONAL ENGINEER
Christopher J. Hernick

DATE: MAR 2021	PROJECT #: 20819
ENGIN'D BY: CJH	DRAWN BY: CJH
CHECK'D BY: WTD	ARCHIVE #: H-___

SHEET S6

X:\20819 Pinnacle - Wastewater System\DWGS\Final\20819_FINAL_03.dwg, S6-updated-CLD, 3/18/2021 11:20:15 AM, ChristHernick

ENVIRO-SEPTIC PIPE ELEVATIONS

LEACH FIELD #1

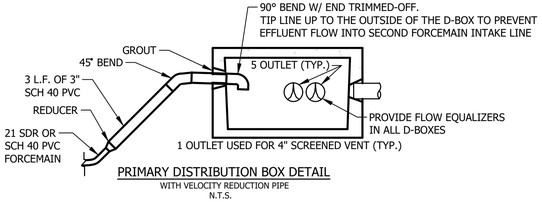
PIPE NUMBER	BOTTOM OF PIPE	TOP OF PIPE	INVERT OF ADAPTER	FINISH GRADE
1	562.25	563.25	562.85	564.00
2	562.01	563.01	562.61	563.76
3	561.76	562.76	562.36	563.51
4	561.52	562.52	562.12	563.27
5	561.27	562.27	561.87	563.02
6	561.03	562.03	561.63	562.78
7	560.78	561.78	561.38	562.53
8	560.54	561.54	561.14	562.29
9	560.29	561.29	560.89	562.04
10	560.05	561.05	560.65	561.80
11	559.80	560.80	560.40	561.55
12	559.56	560.56	560.16	561.31
13	559.31	560.31	559.91	561.06
14	559.07	560.07	559.67	560.82
15	558.82	559.82	559.42	560.57
16	558.58	559.58	559.18	560.33
17	558.33	559.33	558.93	560.08
18	558.09	559.09	558.69	559.84
19	557.84	558.84	558.44	559.59
20	557.60	558.60	558.20	559.35
21	557.35	558.35	557.95	559.10
22	557.11	558.11	557.71	558.86
23	556.86	557.86	557.46	558.61
24	556.62	557.62	557.22	558.37
25	556.37	557.37	556.97	558.12
26	556.13	557.13	556.73	557.88
27	555.88	556.88	556.48	557.63
28	555.64	556.64	556.24	557.39
29	555.39	556.39	555.99	557.14
30	555.15	556.15	555.75	556.90
31	554.90	555.90	555.50	556.65
32	554.66	555.66	555.26	556.41
33	554.41	555.41	555.01	556.16
34	554.17	555.17	554.77	555.92
35	553.92	554.92	554.52	555.67
36	553.68	554.68	554.28	555.43

LEACH FIELD #2

PIPE NUMBER	BOTTOM OF PIPE	TOP OF PIPE	INVERT OF ADAPTER	FINISH GRADE
1	558.60	559.60	559.20	560.35
2	558.36	559.36	558.96	560.11
3	558.11	559.11	558.71	559.86
4	557.87	558.87	558.47	559.62
5	557.62	558.62	558.22	559.37
6	557.38	558.38	557.98	559.13
7	557.13	558.13	557.73	558.88
8	556.89	557.89	557.49	558.64
9	556.64	557.64	557.24	558.39
10	556.40	557.40	557.00	558.15
11	556.15	557.15	556.75	557.90
12	555.91	556.91	556.51	557.66
13	555.66	556.66	556.26	557.41
14	555.42	556.42	556.02	557.17
15	555.17	556.17	555.77	556.92
16	554.93	555.93	555.53	556.68
17	554.68	555.68	555.28	556.43
18	554.44	555.44	555.04	556.19
19	554.19	555.19	554.79	555.94
20	553.95	554.95	554.55	555.70
21	553.70	554.70	554.30	555.45
22	553.46	554.46	554.06	555.21
23	553.21	554.21	553.81	554.96
24	552.97	553.97	553.57	554.72
25	552.72	553.72	553.32	554.47
26	552.48	553.48	553.08	554.23
27	552.23	553.23	552.83	553.98
28	551.99	552.99	552.59	553.74
29	551.74	552.74	552.34	553.49
30	551.50	552.50	552.10	553.25
31	551.25	552.25	551.85	553.00
32	551.01	552.01	551.61	552.76
33	550.76	551.76	551.36	552.51
34	550.52	551.52	551.12	552.27
35	550.27	551.27	550.87	552.02
36	550.03	551.03	550.63	551.78

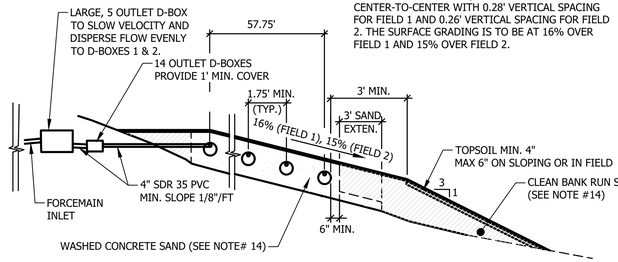
LEACH FIELD #1:
- MIN. HORIZONTAL PIPE SPACING (CENTER-TO-CENTER) = 1.75'
- VERTICAL DIFFERENCE IN ELEVATION BETWEEN LINES = 0.28'
- GRADING OVER FIELD TO FINISH GROUND = 16%

LEACH FIELD #2:
- MIN. HORIZONTAL PIPE SPACING (CENTER-TO-CENTER) = 1.75'
- VERTICAL DIFFERENCE IN ELEVATION BETWEEN LINES = 0.26'
- GRADING OVER FIELD TO FINISH GROUND = 15%



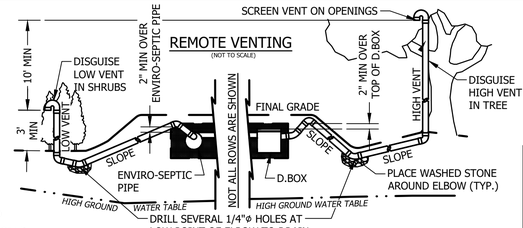
PRIMARY DISTRIBUTION BOX DETAIL
WITH VELOCITY REDUCTION PIPE
N.T.S.

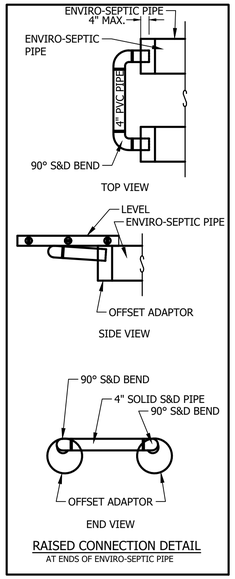
LEACH FIELDS ARE THE SAME IN SIZE, BUT DIFFER IN SLOPE AND ELEVATIONS



TYPICAL LEACH FIELD PROFILE

BOTH FIELDS HAVE 30 ENVIRO-SEPTIC LINES, 100 LINEAR FEET IN LENGTH, SPACED AT 1.75' CENTER-TO-CENTER WITH 0.28' VERTICAL SPACING FOR FIELD 1 AND 0.26' VERTICAL SPACING FOR FIELD 2. THE SURFACE GRADING IS TO BE AT 16% OVER FIELD 1 AND 15% OVER FIELD 2.





RAISED CONNECTION DETAIL
AT ENDS OF ENVIRO-SEPTIC PIPE

NOTES:

1. SYSTEM TO BE INSTALLED IN ACCORDANCE WITH PRODUCT DESIGN AND INSTALLATION MANUAL, STATE AND LOCAL REGULATIONS. FOR PRODUCT INFORMATION OR THE NEAREST DEALER CONTACT PRESBY ENVIRONMENTAL, INC. ROUTE 117 - PO BOX 617 SUGAR HILL, NH 03585 - PHONE 1-800-473-5298 - WWW.PRESBYENVIRONMENTAL.COM

2. PROVIDE MEASURED TIES TO OWNER, ON THE LOCATION OF SEPTIC TANK ACCESS POINTS.

3. ANY DISCREPANCIES OR UNUSUAL CONDITIONS SHOULD BE REPORTED TO THE DESIGNER BEFORE CONTINUING WITH THE INSTALLATION.

4. CONTRACTOR TO PROTECT SYSTEM FROM CONTAMINATION DURING CONSTRUCTION.

5. INSTALLER TO READ AND THOROUGHLY UNDERSTAND THE ENVIRO-SEPTIC LEACHING SYSTEM DESIGN & INSTALLATION HANDBOOK FOR THE STATE OF NEW HAMPSHIRE.

6. STRIP TOPSOIL AND REMOVE ANY SURFACE BOULDERS AND TREES ON AREAS WHERE SYSTEM AND FILL SLOPES ARE TO BE PLACED.

7. NO DEBRIS, STUMPS OR BRUSH IS PERMISSIBLE UNDER THE BED OR THE SLOPES AREAS.

8. TOPSOIL AND SEED OVER LEACH BED AND FILL AREAS WITH GRASS OR SUITABLE GROUND COVER.

9. ALL ENVIRO-SEPTIC LINES OR PIPES TO BE LAID LEVEL.

10. LEACH BED PIPE TO BE "ENVIRO-SEPTIC" 12" WITH PERFORATIONS AND GEOTEXTILE FABRIC. SECTIONS TO BE CONNECTED WITH SPLIT CORRUGATED COUPLINGS TO FORM A SERIAL DISTRIBUTION SYSTEM.

11. ON SEPTIC TANK SEAL ALL PIPE PENETRATIONS AGAINST LEAKAGE WITH NON-SHRINK GROUT. ALL ACCESS OPENINGS AND OTHER JOINTS SHALL BE SEALED WITH A BITUMINOUS OR BUTYL GASKET OR SEALANT. THE INTENT IS TO SEAL THE TANK AGAINST GROUND WATER INFILTRATION.

12. ENV-WS 1023.01
A) SEPTIC TANKS SHALL BE INSPECTED FOR ACCUMULATION OF SLUDGE AND SURFACE SCUM AT LEAST ONCE EVERY YEAR.
B) WHEN THE COMBINED THICKNESS OF THE SLUDGE AND SURFACE SCUM EQUAL 1/3 OR MORE OF THE TANK DEPTH,THE TANK SHALL BE PUMPED BY A LICENSED SEPTIC TANK PUMPER.

13. IF SYSTEM FAILS IT WILL BE REBUILT IN THE SAME LOCATION.

14. ALL CONFIGURATIONS OF ENVIRO-SEPTIC REQUIRE A MINIMUM OF 6" OF MEDIUM TO COARSE SAND WITH AN EFFECTIVE PARTICLE SIZE OF 0.25 TO 2 MM, WITH NO GREATER THAN 2% PASSING A #200 SIEVE AND NO PARTICLES LARGER THAN 3/4" AROUND THE CIRCUMFERENCE OF THE ENVIRO-SEPTIC PIPE. ALL OTHER FILL MATERIAL REQUIRED TO RAISE ENVIRO-SEPTIC PIPE ABOVE THE SEASONAL HIGH WATER TABLE, IMPERVIOUS SUBSTRATUM OR TO PROVIDE THE REQUIRED SAND AREA FOR A GIVEN SYSTEM CONFIGURATION SHALL BE CLEAN BANK RUN SAND, FREE FROM TOPSOIL, HUMUS, DREDGING, DEBRIS, OR STONES LARGER THAN 6" IN DIAMETER.

15. INSTALLER ADVISED TO CONTACT DIG SAFE PRIOR TO CONSTRUCTION.

16. DO NOT INSTALL SYSTEM ON FROZEN GROUND OR LEAVE SYSTEM UNCOVERED FOR EXTENDED PERIODS OF TIME.

17. NO DRAINS, HOT TUBS, SAUNAS, GARBAGE DISPOSALS ETC. SHALL BE INCORPORATED INTO THIS SYSTEM UNLESS OTHERWISE SPECIFIED. ANY REPLACEMENT OR NEW FIXTURES INSTALLED SHALL BE "LOW-FLOW" FIXTURES.

18. SYSTEM MUST BE CONSTRUCTED IN ACCORDANCE WITH ENV-WS 1000. "APPROVAL FOR CONSTRUCTION" IS VALID FOR 4 YEARS FROM DATE OF ISSUE.

19. WETLANDS DELINEATED BY JONATHAN SISSON, CWS #235.

20. SEPTIC TANKS TO BE INSULATED WITH 2' BLUEBOARD ON TOP AND TO 4FT BELOW FINISH GRADE TO PREVENT FREEZING. SEPTIC TANKS TO BE SEALED AND GROUTED TO ENSURE WATERTIGHTNESS.

21. THE DESIGN INTENT IS THAT THE BOTTOM OF THE HIGHEST PIPE IN LEACH FIELD BED #1 SHALL BE AT ELEVATION 557.45. THIS IS APPROX. 2.2 FEET BELOW EXISTING GROUND ON THE HIGH CONTOUR OF THIS DESIGNED EFFLUENT DISPOSAL AREA.
THE BOTTOM OF THE HIGHEST PIPE IN LEACH FIELD BED #2 SHALL BE AT ELEVATION 555.7. THIS IS APPROX. 2.2 FEET BELOW EXISTING GROUND ON THE HIGH CONTOUR OF THIS DESIGNED EFFLUENT DISPOSAL AREA.

PT

PERCOLATION TEST (F&O) (HORIZONS)

DATE:	12/5/08	10/8/20
MEAS. DEPTH:	26 in.	24 in.
MEAS. RATE:	4 min/in	4-8 min/in

DESIGN RATE: **7-9 min/in**

DESIGN DATA
NUMBER OF BEDROOMS: (SEE FLOW DATA SHEET S5)
EST. SEWAGE LOADING: 9,390 gpd
LENGTH OF ENVIRO-SEPTIC PIPE REQUIRED = 5,734 L.F.
LENGTH OF ENVIRO-SEPTIC PIPE PROVIDED = 6,000 L.F.
(36 ROWS @ 80 FT PER ROW, PER FIELD)
BOTTOM OF BED #1 ELEV.: 564.25 (AT HIGHEST PIPE IN SYSTEM)
BOTTOM OF BED #2 ELEV.: 562.50 (AT HIGHEST PIPE IN SYSTEM)

SOIL DATA
SOIL TYPE: 334B - PITTSTOWN LOAM, 3-8% SLOPES
COUNTY: GRAFTON
SOURCE: SOIL SURVEY OF GRAFTON COUNTY AREA, NEW HAMPSHIRE; WWW.WEBSOILSURVEY.COM

SEPTIC TANKS
MATERIAL: CONCRETE TANKS AT VARIOUS SIZES TO BE PROVIDED BY L.E.WEED & SON, NEWPORT, NH. OR EQUAL. (SEE SHEETS S5 & S6 FOR TANK SIZES). PROVIDE ZABEL FILTERS IN ALL SINGLE COMPARTMENT SEPTIC TANKS. FILTERS TO BE SIZED FOR DAILY FLOW THROUGH SEPTIC TANK. PROVIDE OUTLET BAFFLES AT CENTER COMPARTMENT ON ALL MULTI-COMPARTMENT TANKS.

SEALING TANKS AGAINST INFILTRATION
SEAL ALL PIPE PENETRATIONS AGAINST LEAKAGE WITH A NON-SHRINK GROUT. ALL ACCESS OPENINGS AND OTHER JOINTS SHALL BE SEALED WITH A BITUMINOUS OR BUTYL GASKET OR SEALANT. THE INTENT IS TO SEAL THE TANK AGAINST GROUND WATER INFILTRATION.

DISTRIBUTION BOXES
MAIN D-BOX: PROVIDE A LARGE, 5 OUTLET DISTRIBUTION BOX WITH 4" HIGH VENT AND EQUALIZED DISTRIBUTION LINES TO TWO 6-OUTLET DISTRIBUTION BOXES.
D-BOX 1 & D-BOX 2: PROVIDE 6-OUTLET DISTRIBUTION BOXES WITH EQUALIZED DISTRIBUTION LINES TO ENVIRO-SEPTIC PIPES.

LEACH FIELD
ENVIRO-SEPTIC WASTEWATER TREATMENT SYSTEMS ARE APPROVED BY NHDES AS AN "INNOVATIVE TREATMENT ALTERNATIVE" IN ACCORDANCE WITH PART ENV-WS 1024. THE SYSTEM IS DESIGNED IN ACCORDANCE WITH THE ENVIRO-SEPTIC AND SIMPLE SEPTIC LEACHING SYSTEMS DESIGN AND INSTALLATION MANUAL AND THE ENVIRO-SEPTIC WASTEWATER TREATMENT SYSTEMS DESIGN AND INSTALLATION MANUAL NEW HAMPSHIRE ATTACHMENT.

PUMPS
TANK 5: PROVIDE A STA-RITE MODEL EC3 PUMP, 1/3 HORSEPOWER, 230 VOLT, SINGLE PHASE PUMP, WHICH WILL PROVIDE 20 GPM AT 17 FEET OF HEAD.
TANK 6a: PROVIDE A STA-RITE MODEL EC4 PUMP, 1/2 HORSEPOWER, 230 VOLT, SINGLE PHASE PUMP, WHICH WILL PROVIDE 20 GPM AT 30 FEET OF HEAD.
TANK 7: PROVIDE A STA-RITE MODEL EC4 PUMP, 1/2 HORSEPOWER, 230 VOLT, SINGLE PHASE PUMP, WHICH WILL PROVIDE 20 GPM AT 30 FEET OF HEAD.
TANK 8 (MAIN): PROVIDE THREE ALTERNATING STA-RITE MODEL ST.E.P. 30 PUMPS, 1 1/2 HORSEPOWER, 230 VOLT, SINGLE PHASE PUMPS, WHICH WILL PROVIDE 30 GPM AT 145 FEET OF HEAD.

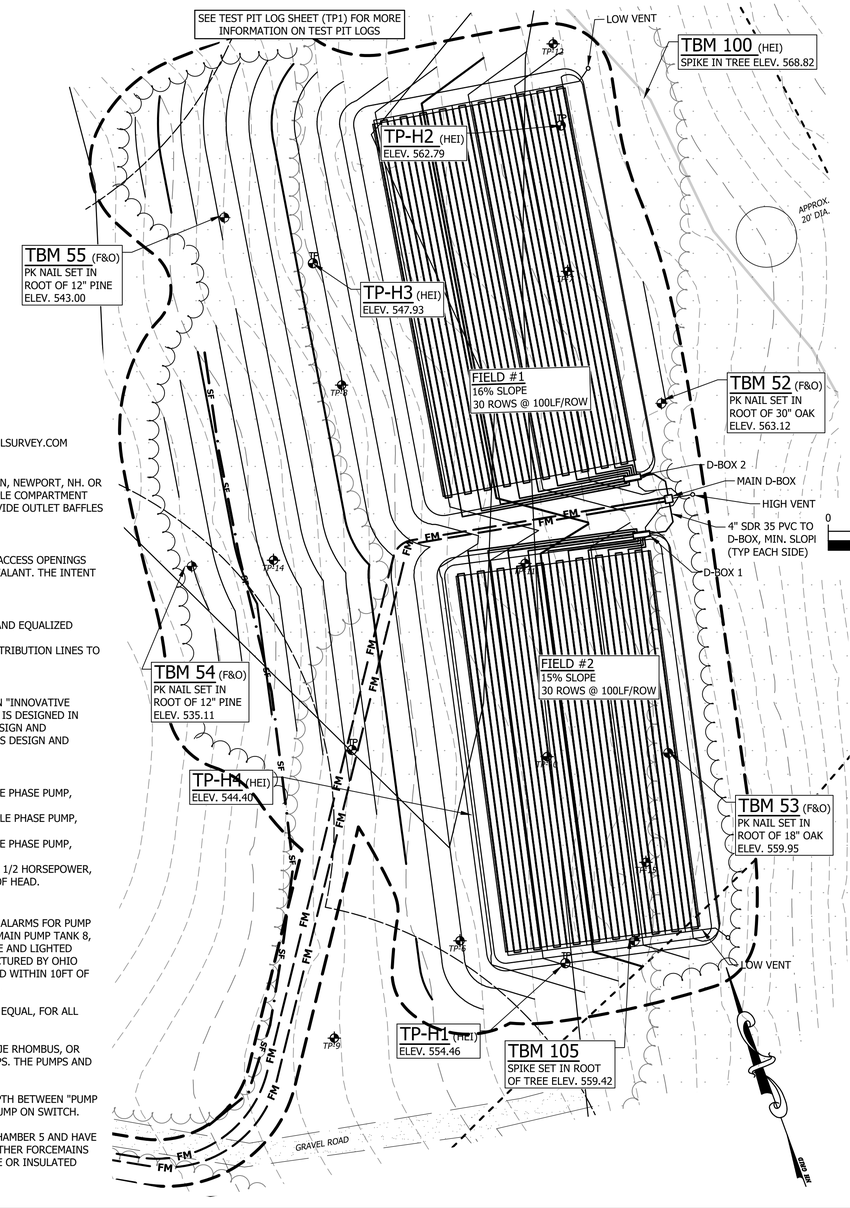
PUMP ACCESSORIES, CONTROL PANELS & ALARMS
PROVIDE NEMA-4, LOCKABLE, EXTERIOR MOUNTED CONTROL PANELS WITH LIGHTED ALARMS FOR PUMP TANKS 5, 6a & 7, MOUNTED ON THE OUTSIDE OF THE NEAREST BUILDING. FOR THE MAIN PUMP TANK 8, PROVIDE A NEMA-4, LOCKABLE CONTROL PANEL WITH POWER SHUTOFF AND AUDIBLE AND LIGHTED ALARM, MOUNTED ON AN ALUMINUM PEDESTAL MOUNT, MODEL NO. 60, AS MANUFACTURED BY OHIO ELECTRIC CONTROL, INC. AND SUPPLIED BY PUMP SYSTEMS INC., OR EQUAL, LOCATED WITHIN 10FT OF THE TANK. A REMOTE LIGHTED ALARM SHALL BE INSTALLED IN THE LODGE KITCHEN.

PROVIDE GUIDE RAIL DISCONNECT SYSTEM MANUFACTURED BY EPG COMPANIES, OR EQUAL, FOR ALL PUMP MOUNTING SYSTEMS, AS SUPPLIED BY PUMP SYSTEMS INC., FRANKLIN, NH.

INCLUDE FLOAT CONTROL PUMPMASTER® PUMP SWITCHES AS MANUFACTURED BY SJE RHOMBUS, OR EQUAL, FLOAT SWITCH BRACKETS, AND HIGH WATER ALARM SWITCHES ON ALL PUMPS. THE PUMPS AND ACCESSORIES ARE AVAILABLE FROM: PUMP SYSTEMS INC., FRANKLIN, NH.

SET PUMP OFF SWITCH ABOVE BASE OF PUMP CHAMBER AND PROVIDE DRAWING DEPTH BETWEEN "PUMP ON" AND "PUMP OFF" SWITCHES. SET ALARM SWITCH AT SAME ELEVATION AS 3RD PUMP ON SWITCH.

FORCEMAIN FROM PUMP CHAMBER 5 TO MAIN PUMP 8 IS TO PITCH BACK TO PUMP CHAMBER 5 AND HAVE A 1/4" HOLE DRILLED IN THE CHECK VALVE TO DRAIN BETWEEN PUMP CYCLES. NO OTHER FORCEMAINS ARE TO DRAIN BACK TO THEIR PUMP CHAMBERS. FORCEMAIN TO BE 4' BELOW GRADE OR INSULATED WITH 2" BLUEBOARD STYROFOAM.



DATE OF PRINT
MARCH 18 2021
HORIZONS ENGINEERING

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NEWPORT VT • LITTLETON NH • NEW LONDON NH
SHARON VT • KENNEBUNK ME • CONWAY NH

LOCH LYME LODGE

UTILITY IMPROVEMENT PROJECT

LYME, NEW HAMPSHIRE

WASTEWATER TREATMENT DETAILS AND NOTES

NO.	DATE	REVISION DESCRIPTION	ENG	DWG

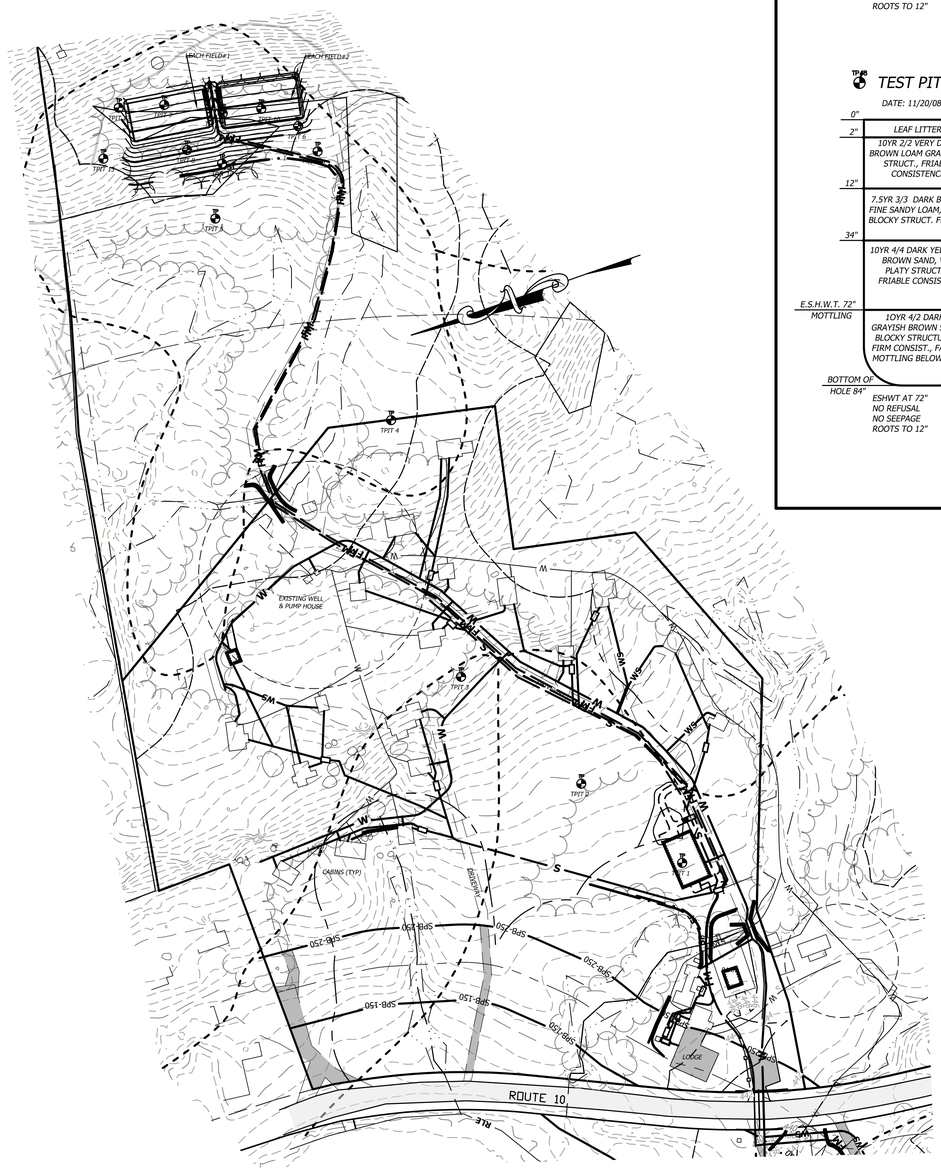
STATE OF NEW HAMPSHIRE – CHRISTOPHER J. HERNICK No. 15390 – PROFESSIONAL ENGINEER – LICENSED

DATE: MAR 2021	PROJECT #: 20819
ENGIN'D BY: CJH	DRAWN BY: CJH
CHECK'D BY: WTD	ARCHIVE #: H-___

SHEET S7

SOIL LEGEND:

62B	CHARLTON FINE SANDY LOAM, 3-8% SLOPES
63D	CHARLTON FINE SANDY LOAM, 15-25% SLOPES
63E	CHARLTON FINE SANDY LOAM, 25-35% SLOPES
77E	MARLOW FINE SANDY LOAM, 25-35% SLOPES
130B	HITCHCOCK SILTY LOAM, 3-8% SLOPES
130C	HITCHCOCK SILTY LOAM, 8-15% SLOPES
313	DEERFIELD FINE SANDY LOAM
331D	BERNARDSTON SILTY LOAM, 15-25% SLOPES, VERY STONY
334B	PITTSTOWN LOAM, 3-8% SLOPES
336B	PITTSTOWN LOAM, 3-8% SLOPES, VERY STONY
341B	STISSING SILTY LOAM, 3-8% SLOPES, VERY STONY
360D	CARDIGAN-KEARSARGE COMPLEX, 15-25% SLOPES
361E	CARDIGAN-KEARSARGE-ROCK OUTCROP COMPLEX, 25-60% SLOPES



TEST PIT #1

DATE: 11/20/08 DAG

0"	10YR 3/2 VERY DARK GRAYISH BROWN LOAM WEAK BLOCKY STRUCT.. FRIABLE CONSIST.
7"	10YR 3/4 DARK YELLOWISH BROWN LOAM, WEAK BLOCKY STRUCTURE, FRIABLE CONSISTENCE
E.S.H.W.T. 12" MOTTLING	10YR 4/3 BROWN SILT, BLOCKY STRUCT., FIRM CONSIST., PLENTIFUL HIGH CHROMA MOTTLING AT 14"
BOTTOM OF HOLE 48"	

ESHWT @ 12"
NO REFUSAL
NO SEEPAGE
ROOTS TO 12"

TEST PIT #2

DATE: 11/20/08 DAG

0"	10YR 3/2 VERY DARK GRAYISH BROWN LOAM WEAK BLOCKY STRUCT.. FRIABLE CONSIST.
E.S.H.W.T. 8" MOTTLING	10YR 4/1 DARK GRAY SILTY CLAY, BLOCKY STRUCT., FIRM CONSIST., MOTTLING AT 8"
BOTTOM OF HOLE 36"	

ESHWT @ 8"
NO REFUSAL
NO SEEPAGE
ROOTS TO 12"

TEST PIT #3

DATE: 11/20/08 DAG

0"	10YR 3/3 DARK BROWN SILTY LOAM WEAK PLATY STRUCT.. FIRM CONSIST.
6"	10YR 4/3 BROWN LOAM, WEAK PLATY STRUCTURE, FIRM CONSISTENCE
E.S.H.W.T. 14" MOTTLING	10YR 2/1 BLACK SILTY CLAY, STRONG PLATY STRUCTURE, VERY FIRM CONSIST., WEAK MOTTLING AT 14"
BOTTOM OF HOLE 48"	

ESHWT @ 14"
NO REFUSAL
NO SEEPAGE
ROOTS TO 10"

TEST PIT #4

DATE: 11/20/08 DAG

0"	10YR 3/3 DARK BROWN SILTY LOAM WEAK PLATY STRUCT.. FIRM CONSIST.
6"	10YR 4/3 BROWN LOAM, WEAK PLATY STRUCTURE, FIRM CONSISTENCE
E.S.H.W.T. 12" MOTTLING	10YR 2/1 BLACK SILTY CLAY, STRONG PLATY STRUCTURE, VERY FIRM CONSIST., WEAK MOTTLING AT 14"
BOTTOM OF HOLE 40"	

ESHWT @ 12"
NO REFUSAL
NO SEEPAGE
ROOTS TO 10"

TEST PIT #5

DATE: 11/20/08 DAG

0"	LEAF LITTER
2"	10YR 3/3 DARK BROWN FINE SANDY LOAM GRANULAR STRUCT.. FRIABLE CONSIST.
10"	7.5YR 4/3 BROWN FINE SANDY LOAM, WEAK BLOCKY STRUCT., FRIABLE CONSIST.
E.S.H.W.T. 25" MOTTLING	10YR 4/2 DARK GRAYISH BROWN SILT, GRAVELLY IN PART, PLATY STRUCT., VERY FIRM CONSIST., WEAK MOTTLES AT 25"
BOTTOM OF HOLE 60"	

ESHWT @ 25"
NO REFUSAL
NO SEEPAGE
ROOTS TO 20"
FEW COBBLES
THROUGHOUT PROFILE

TEST PIT #6

DATE: 11/20/08 DAG

0"	LEAF LITTER
2"	10YR 4/4 DARK YELLOWISH BROWN FINE SAND GRANULAR STRUCT., FRIABLE CONSISTENCE
9"	7.5YR 4/3 BROWN FINE SAND, GRAVELLY IN PART, GRANULAR , FRIABLE
24"	10YR 4/4 DARK YELLOWISH BROWN LOAMY FINE SAND, WEAK PLATY STRUCTURE, FRIABLE CONSISTENCE
38"	10YR 3/3 DARK BROWN LOAMY FINE SAND, GRAVELLY IN PART, WEAK PLATY STRUCTURE, FIRM CONSIST., NO MOTTLING
BOTTOM OF HOLE 60"	

NO ESHWT TO DEPTH
NO REFUSAL
NO SEEPAGE
ROOTS TO 38"
BECOMING MORE
COBBLY BELOW 38"

TEST PIT #7

DATE: 11/20/08 DAG

0"	LEAF LITTER
5"	10YR 4/4 DARK YELLOWISH BROWN LOAM GRANULAR STRUCT.. FRIABLE CONSIST.
22"	10YR 3/4 DARK YELLOWISH BROWN SAND, GRAVELLY IN PART, GRANULAR TO WEAK PLATY STRUCT., FRIABLE CONSIST.,
BOTTOM OF HOLE 84"	

NO ESHWT TO DEPTH
NO REFUSAL
NO SEEPAGE
ROOTS TO 12"
FEW COBBLES
THROUGHOUT PROFILE

TEST PIT #8

DATE: 11/20/08 DAG

0"	LEAF LITTER
2"	10YR 2/2 VERY DARK BROWN LOAM GRANULAR STRUCT., FRIABLE CONSISTENCE
12"	7.5YR 3/3 DARK BROWN FINE SANDY LOAM, WEAK BLOCKY STRUCT. FRIABLE
34"	10YR 4/4 DARK YELLOWISH BROWN SAND, WEAK PLATY STRUCTURE, FRIABLE CONSISTENCE
E.S.H.W.T. 72" MOTTLING	10YR 4/2 DARK GRAYISH BROWN SILT, BLOCKY STRUCTURE, FIRM CONSIST., FAINT MOTTLING BELOW 60"
BOTTOM OF HOLE 84"	

ESHWT AT 72"
NO REFUSAL
NO SEEPAGE
ROOTS TO 12"

TEST PIT #9

DATE: 11/20/08 DAG

0"	LEAF LITTER
2"	10YR 2/2 VERY DARK BROWN LOAM GRANULAR STRUCT., FRIABLE CONSISTENCE
12"	10YR 4/2 DARK GRAYISH BROWN SILT, BLOCKY STRUCTURE, FIRM CONSIST.
52"	10YR 4/4 DARK YELLOWISH BROWN SAND, VARVED SILTY LENSES IN PART, GRANULAR TO WEAK PLATY STRUCTURE, FRIABLE CONSISTENCE
BOTTOM OF HOLE 84"	

NO ESHWT TO DEPTH
NO REFUSAL
NO SEEPAGE
ROOTS TO 20"
FEW COBBLES
BELOW 52"

TEST PIT #10

DATE: 12/05/08 DAG

0"	LEAF LITTER
2"	10YR 2/2 VERY DARK BROWN LOAM GRANULAR STRUCT., FRIABLE CONSISTENCE
10"	7.5YR 3/4 DARK YELLOWISH BROWN LOAMY SAND, GRANULAR, FRIABLE
22"	10YR 3/6 DARK YELLOWISH BROWN SAND, GRAVELLY IN PART, GRANULAR, FRIABLE
36"	2.5Y 4/2 DARK GRAYISH BROWN SILTY LENSES, PLATY, FIRM W/ SAND & GRAVELLY INCLUSIONS. BECOMING MORE SAND & GRAVELLY, LESS SILTY WITH DEPTH
BOTTOM OF HOLE 60"	

NO ESHWT TO DEPTH
NO REFUSAL
NO SEEPAGE
ROOTS TO 20"

TEST PIT #11

DATE: 12/05/08 DAG

0"	SIMILAR TO TPIT #10
36"	2.5Y 4/2 DARK GRAYISH BROWN SAND, GRAVELLY IN PART, W/ FEW SILTY LENSES
E.S.H.W.T. 90" RESTRICTIVE LAYER	10YR 4/1 DARK GRAY SILTY CLAY, STRONG BLOCKY STRUCTURE, VERY FIRM CONSISTENCE, PROINENT VARVED LAYERS IN CLAY
BOTTOM OF HOLE 96"	

ESHWT AT 90"
NO REFUSAL
NO SEEPAGE
ROOTS TO 20"

TEST PIT #12

DATE: 12/05/08 DAG

0"	SIMILAR TO TPIT #10
22"	2.5Y 4/2 DARK GRAYISH BROWN SAND, GRAVELLY IN PART, W/ FEW SILTY LENSES, 3" THICK SILTY LAYER AT 36", THEN BACK TO SAND, GRAVELLY MIX, COBBLY IN PART.
BOTTOM OF HOLE 90"	

NO ESHWT TO DEPTH
NO REFUSAL
NO SEEPAGE
ROOTS TO 20"

TEST PIT #13

DATE: 12/05/08 DAG

0"	LEAF LITTER
2"	10YR 2/2 VERY DARK BROWN LOAM GRANULAR STRUCT., FRIABLE CONSISTENCE
12"	10YR 4/4 DARK YELLOWISH BROWN FINE SAND, GRAVELLY & COBBLY IN PART, GRANULAR, FRIABLE W/ SMALL LENSES OF SILTY MATERIAL
E.S.H.W.T. 96" RESTRICTIVE LAYER	10YR 5/1 GRAY SILTY CLAY, STRONG PLATY STRUCTURE, VERY FIRM CONSISTENCE, PROINENT VARVED LAYERS IN CLAY
BOTTOM OF HOLE 102"	

ESHWT AT 96"
NO REFUSAL
NO SEEPAGE
ROOTS TO 12"

TEST PIT #14

DATE: 12/05/08 DAG

0"	LEAF LITTER
2"	10YR 3/3 DARK BROWN SANDY LOAM GRANULAR, FRIABLE, FEW COBBLES
14"	10YR 3/4 DARK YELLOWISH BROWN SAND W/ FEW SILTY LENSES, GRANULAR, FRIABLE
44"	7.5YR 3/3 DARK BROWN SAND, GRAVELLY & COBBLY IN PART, GRANULAR, LOOSE CONSISTENCE
E.S.H.W.T. 64" RESTRICTIVE LAYER	10YR 4/1 DARK GRAY SILTY CLAY, BLOCKY STRUCTURE, VERY FIRM CONSISTENCE, SOME INTERNAL MOISTURE
BOTTOM OF HOLE 78"	

ESHWT AT 64"
NO REFUSAL
SEEPAGEAT 64"
ROOTS TO 20"

FUSS & O'NEIL TEST PITS

TEST PIT #H1

EXISTING GROUND

VERY DARK BROWN	10YR 2/2	9"	LOAM, MASSIVE, FRIABLE.
DARK YELLOWISH BROWN	10YR 4/6	24"	FINE SANDY LOAM, MASSIVE, FRIABLE.
OLIVE BROWN	2.5Y 4/4	43"	SAND & GRAVEL, LOOSE, GRANULAR.
LIGHT OLIVE BROWN LENS: LIGHT BROWNISH GRAY	2.5Y 5/6 2.5Y 6/2	72"	SAND & GRAVEL, 40% COBBLES, FIRM IN PLACE. SILT LENSES

E.S.H.W.T.: >72"
WATER OBSERVED: NONE
LEDGE ENCOUNTERED: NONE TO DEPTH, 72"
INSPECTED BY: CATHY CONWAY, PE, HORIZONS ENGINEERING, INC.
DATE: 8 DECEMBER 2020

PERCOLATION TEST
DEPTH: 24"
RATE: 4 MIN./INCH

TEST PIT #H2

EXISTING GROUND

DARK BROWN	10YR 3/3	4"	LOAM, MASSIVE, FRIABLE
DARK YELLOWISH BROWN	10YR 4/4	26"	FINE SANDY LOAM, MASSIVE, FRIABLE.
OLIVE BROWN	2.5Y 4/4	36"	MEDIUM SAND, LOOSE, GRANULAR.
YELLOWISH BROWN	10YR 5/6	72"	COURSE SAND & GRAVEL, 30% COBBLES, LOOSE, GRANULAR.

E.S.H.W.T.: >72"
WATER OBSERVED: NONE
LEDGE ENCOUNTERED: NONE TO DEPTH, 72"
INSPECTED BY: CATHY CONWAY, PE, HORIZONS ENGINEERING, INC.
DATE: 8 DECEMBER 2020

PERCOLATION TEST
RATE: 4 MIN./INCH

TEST PIT #H3

EXISTING GROUND

VERY DARK GRAY	10YR 3/1	6"	LOAM, MASSIVE, FRIABLE.
BROWN	10YR 4/3	16"	LOAM, MASSIVE, FRIABLE.
OLIVE BROWN	2.5Y 4/3	24"	VERY FINE SANDY LOAM, MASSIVE, FRIABLE.
GRAYISH BROWN	10YR 5/2	36"	SILTY LOAM, MASSIVE, FIRM IN PLACE.
OLIVE BROWN	2.5Y 4/4	44"	MEDIUM SAND, LOOSE, GRANULAR.
YELLOWISH BROWN	10YR 5/6	72"	SAND & GRAVEL, LOOSE, GRANULAR.
DARK GRAYISH BROWN	2.5Y 4/2	80"	SILTY LOAM, PLATY, FIRM IN PLACE.

E.S.H.W.T.: 24"
WATER OBSERVED: NONE
LEDGE ENCOUNTERED: NONE TO DEPTH, 80"
INSPECTED BY: CATHY CONWAY, PE, HORIZONS ENGINEERING, INC.
DATE: 8 DECEMBER 2020

PERCOLATION TEST
RATE: 6 MIN./INCH

TEST PIT #H4

EXISTING GROUND

DARK GRAYISH BROWN	10YR 4/2	8"	LOAM, MASSIVE, FRIABLE.
DARK YELLOWISH BROWN	10YR 4/4	24"	FINE SANDY LOAM, MASSIVE, FRIABLE.
OLIVE BROWN	2.5Y 4/3	30"	VERY FINE SANDY LOAM, MASSIVE, FRIABLE.
DARK GRAYISH BROWN WITH GRAY	2.5Y 4/2 2.5Y 5/1	50"	SILTY LOAM, PLATY, FIRM IN PLACE.
LIGHT OLIVE BROWN	2.5Y 5/6	72"	COARSE SAND, LOOSE, GRANULAR.

E.S.H.W.T.: 30"
WATER OBSERVED: NONE
LEDGE ENCOUNTERED: NONE TO DEPTH, 72"
INSPECTED BY: CATHY CONWAY, PE, HORIZONS ENGINEERING, INC.
DATE: 8 DECEMBER 2020

PERCOLATION TEST
RATE: 8 MIN./INCH

HORIZONS ENGINEERING TEST PITS

DATE OF PRINT
MARCH 18 2021
HORIZONS ENGINEERING

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LOCH LYME LODGE

UTILITY IMPROVEMENT PROJECT

LYME, NEW HAMPSHIRE

TEST PIT LOGS AND LOCATIONS

NO.	DATE	REVISION DESCRIPTION	ENG	DWG

STATE OF NEW HAMPSHIRE – CHRISTOPHER J. HERNICK No.15390 – LICENSED PROFESSIONAL ENGINEER

DATE: MAR 2021	PROJECT #: 20819
ENGIN'D BY: CJH	DRAWN BY: CJH
CHECK'D BY: WTD	ARCHIVE #: H-___

SHEET TP1

SEEDING RECOMMENDATIONS

1. GRADING AND SHAPING

A. SLOPES SHALL NOT BE STEEPER THAN 2:1; 3:1 SLOPES OR FLATTER ARE PREFERRED. WHERE MOWING WILL BE DONE, 3:1 SLOPES OR FLATTER ARE RECOMMENDED.

2. SEEDBED PREPARATION

A. SURFACE AND SEEPAGE WATER SHOULD BE DRAINED OR DIVERTED FROM THE SITE TO PREVENT DROWNING OR WINTER KILLING OF THE PLANTS.

B. STONES LARGER THAN 4 INCHES AND TRASH SHOULD BE REMOVED BECAUSE THEY INTERFERE WITH SEEDING AND FUTURE MAINTENANCE OF THE AREA. WHERE FEASIBLE, THE SOIL SHOULD BE AMENDED WITH ORGANIC MATTER AND TILLED TO A DEPTH OF ABOUT 4 INCHES TO PREPARE A SEEDBED AND MIX FERTILIZER AND LIME THOROUGHLY INTO THE SOIL. THE SEEDBED SHOULD BE LEFT IN A REASONABLY FIRM AND SMOOTH CONDITION. THE LAST TILLAGE OPERATION SHOULD BE PERFORMED ACROSS THE SLOPE WHEREVER PRACTICAL.

3. ESTABLISHING VEGETATION

A. LIME AND FERTILIZER SHOULD BE APPLIED PRIOR TO OR AT THE TIME OF SEEDING AND INCORPORATED INTO THE SOIL. KINDS AND AMOUNTS OF LIME AND FERTILIZER SHOULD BE BASED ON AN EVALUATION OF SOIL TESTS. WHEN A SOIL TEST IS NOT AVAILABLE, THE FOLLOWING MINIMUM AMOUNTS SHOULD BE APPLIED:

-AGRICULTURAL LIMESTONE, 2 TONS PER ACRE OR 100 LBS. PER 1,000 SQ. FT.
-NITROGEN (N), 50 LBS., PER ACRE OR 1.1 LBS. PER 1,000 SQ. FT.
-PHOSPHATE (P_2O_5), 100 LBS. PER ACRE OR 2.2 LBS. PER 1,000 SQ. FT.
-POTASH (K_2O), 100 LBS. PER ACRE OR 2.2 LBS. PER 1,000 SQ. FT.

(NOTE: THIS IS THE EQUIVALENT OF 500 LBS. PER ACRE OF 10-20-20 FERTILIZER OR 1,000 LBS. PER ACRE OF 5-10-10).

B. SEED SHOULD BE SPREAD UNIFORMLY BY THE METHOD MOST APPROPRIATE FOR THE SITE. METHODS INCLUDE BROADCASTING, DRILLING, AND HYDROSEEDING. WHERE BROADCASTING IS USED, COVER SEED WITH .25 INCH OF SOIL OR LESS, BY CULTIPACKING OR RAKING.

C. SEEDING GUIDE:

USE	SEEDING MIXTURE (SEE 3D)	SOIL TYPE: DROUGHTY	WELL DRAINED	MOD. WELL DRAINED	POORLY DRAINED
STEEP CUTS AND FILLS, BORROW AND DISPOSAL AREAS	A	FAIR	GOOD	GOOD	FAIR
	B	POOR	GOOD	FAIR	FAIR
	C	FAIR	EXCELLENT	EXCELLENT	POOR
WATERWAYS, EMERGENCY SPILL-WAYS, AND OTHER CHANNELS WITH FLOWING WATER	A	GOOD	GOOD	GOOD	FAIR
LIGHTLY USED PARKING LOTS, ODD AREAS, UNUSED LANDS, AND LOW INTENSITY USE RECREATION SITES	A	GOOD	GOOD	GOOD	FAIR
	B	GOOD	GOOD	FAIR	POOR

D. SEEDING RATES:

MIXTURE	POUNDS PER ACRE	POUNDS PER 1,000 SQ. FT.
A TALL FESCUE	20	0.45
CREEPING RED FESCUE	20	0.45
REDTOP	2	0.05
TOTAL:	42	0.95
B TALL FESCUE	15	0.35
CREEPING RED FESCUE	10	0.25
CROWN VETCH **OR**	15 **OR**	0.35 **OR**
FLATPEA	30	0.75
TOTAL:	40 **OR** 55	0.95 **OR** 1.35
C TALL FESCUE	20	0.45
FLATPEA	30	0.75
TOTAL:	50	1.20

E. WHEN SEEDED AREAS ARE MULCHED, PLANTINGS MAY BE MADE FROM EARLY SPRING TO SEPTEMBER 15. WHEN SEEDED AREAS ARE NOT MULCHED, PLANTINGS SHOULD BE MADE FROM EARLY SPRING TO MAY 20 OR FROM AUGUST 10 TO SEPTEMBER 1.

F. TEMPORARY SEEDING RATES:

SPECIES	POUNDS PER ACRE	POUNDS PER 1,000 SQ. FT.	REMARKS
WINTER RYE	112	2.5	BEST FOR FALL SEEDING. SEED FROM AUGUST TO SEPTEMBER 5TH FOR BEST COVER. SEED TO A DEPTH OF 1 INCH.
OATS	80	2.0	BEST FOR SPRING SEEDING. SEED NO LATER THAN MAY 15TH FOR SUMMER PROTECTION. SEED TO A DEPTH OF 1 INCH.
ANNUAL RYEGRASS	40	1.0	GROWS QUICKLY, BUT IS OF SHORT DURATION. USE WHERE APPEARANCES ARE NOT IMPORTANT. SEED EARLY SPRING AND/OR BETWEEN AUGUST 15TH AND SEPTEMBER 15TH. COVER SEED WITH NO MORE THAN 0.25 INCH OF SOIL.
PERENNIAL RYEGRASS	30	0.7	GOOD COVER WHICH IS LONGER LASTING THAN ANNUAL RYEGRASS. SEED BETWEEN APRIL 1ST AND JUNE 1ST AND/OR BETWEEN AUGUST 15TH AND SEPTEMBER 15TH. MULCHING WILL ALLOW SEEDING THROUGHOUT THE GROWING SEASON. SEED TO A DEPTH OF APPROXIMATELY 0.5 INCH.

4. MULCH

A. HAY, STRAW, OR OTHER MULCH, WHEN NEEDED, SHOULD BE APPLIED IMMEDIATELY AFTER SEEDING.

B. MULCH WILL BE HELD IN PLACE USING APPROPRIATE TECHNIQUES FROM THE BEST MANAGEMENT PRACTICE FOR MULCHING.

5. MAINTENANCE TO ESTABLISH A STAND

A. PLANTED AREAS SHOULD BE PROTECTED FROM DAMAGE BY FIRE, GRAZING, TRAFFIC, AND DENSE WEED GROWTH.

B. FERTILIZATION NEEDS SHOULD BE DETERMINED BY ON SITE INSPECTIONS. SUPPLEMENTAL FERTILIZER IS USUALLY THE KEY TO FULLY COMPLETE THE ESTABLISHMENT OF THE STAND BECAUSE MOST PERENNIALS TAKE 2 TO 3 YEARS TO BECOME ESTABLISHED.

C. IN WATERWAYS, CHANNELS, OR SWALES WHERE UNIFORM FLOW CONDITIONS ARE ANTICIPATED, OCCASIONAL MOWING MAY BE NECESSARY TO CONTROL GROWTH OF WOODY VEGETATION.

LEVEL LIP SPREADER INSTALLATION

1. CONSTRUCT THE LEVEL SPREADER LIP ON A ZERO PERCENT GRADE TO INSURE UNIFORM SPREADING OF RUNOFF.
2. LEVEL SPREADER SHALL BE CONSTRUCTED ON UNDISTURBED SOIL AND NOT ON FILL.
3. AN EROSION STOP SHALL BE PLACED VERTICALLY A MINIMUM OF SIX INCHES DEEP IN A SLIT TRENCH ONE FOOT BACK OF THE LEVEL LIP AND PARALLEL TO THE LIP. THE EROSION STOP SHALL EXTEND THE ENTIRE LENGTH OF THE LEVEL LIP.
4. THE ENTIRE LEVEL LIP AREA SHALL BE PROTECTED BY PLACING TWO STRIPS OF JUTE OR EXCELSIOR MATTING ALONG THE LIP. EACH STRIP SHALL OVERLAP THE EROSION STOP BY AT LEAST SIX INCHES.
5. THE ENTRANCE CHANNEL TO THE LEVEL SPREADER SHALL NOT EXCEED A 1 PERCENT GRADE FOR AT LEAST 50 FEET BEFORE ENTERING INTO THE SPREADER.
6. THE FLOW FROM THE LEVEL SPREADER SHALL OUTLET ONTO STABILIZED AREAS. WATER SHOULD NOT RE-CONCENTRATE IMMEDIATELY BELOW THE SPREADER.
7. PERIODIC INSPECTION AND REQUIRED MAINTENANCE SHALL BE PERFORMED.
8. PROTECTIVE MATERIAL AND EROSION STOP SHALL BE NORTH AMERICAN GREEN C125 EROSION CONTROL BLANKET OR APPROVED EQUAL.

EROSION CONTROL GENERAL NOTES

A. KEEP SITE MODIFICATION TO A MINIMUM

1. CONSIDER FITTING THE BUILDINGS AND STREETS TO THE NATURAL TOPOGRAPHY. THIS REDUCES THE NEED FOR CUTS AND FILLS. AVOID EXTENSIVE GRADING THAT WOULD ALTER DRAINAGE PATTERNS OR CREATE VERY STEEP SLOPES.
2. EXPOSE AREAS OF BARE SOIL TO EROSIVE ELEMENTS FOR THE SHORTEST TIME POSSIBLE.
3. SAVE AND PROTECT DESIRABLE EXISTING VEGETATION WHERE POSSIBLE. ERECT BARRIERS TO PREVENT DAMAGE FROM CONSTRUCTION EQUIPMENT.
4. LIMIT THE GRADES OF SLOPES SO VEGETATION CAN BE EASILY ESTABLISHED AND MAINTAINED.
5. AVOID SUBSTANTIAL INCREASE IN RUNOFF LEAVING THE SITE.

B. MINIMIZE POLLUTION OF WATER DURING CONSTRUCTION ACTIVITIES

1. STOCKPILE TOPSOIL REMOVED FROM CONSTRUCTION AREA AND SPREAD OVER ANY DISTURBED AREAS PRIOR TO REVEGETATION. TOPSOIL STOCKPILES MUST BE PROTECTED FROM EROSION.
2. PROTECT BARE SOIL AREAS EXPOSED BY GRADING ACTIVITIES WITH TEMPORARY VEGETATION OR MULCHES.
3. USE SEDIMENT BASINS TO TRAP DEBRIS AND SEDIMENT WHICH WILL PREVENT THESE MATERIALS FROM MOVING OFF SITE.
4. USE DIVERSIONS TO DIRECT WATER AROUND THE CONSTRUCTION AREA AND AWAY FROM EROSION PRONE AREAS TO POINTS OF SAFE DISPOSAL.
5. USE TEMPORARY CULVERTS OR BRIDGES WHEN CROSSING STREAMS WITH EQUIPMENT.
6. PLACE CONSTRUCTION FACILITIES, MATERIALS, AND EQUIPMENT STORAGE AND MAINTENANCE AREAS AWAY FROM DRAINAGE WAYS.

C. PROTECT AREA AFTER CONSTRUCTION.

1. ESTABLISH GRASS OR OTHER SUITABLE VEGETATION ON ALL DISTURBED AREAS. SELECT SPECIES ADAPTED TO THE SITE CONDITIONS AND THE FUTURE USE OF THE AREA. FINAL GRADES SHALL BE SEEDED WITHIN 72 HOURS. STABILIZATION SHALL BE DEFINED AS 85% VEGETATIVE COVER.
2. MAINTAIN VEGETATED AREAS USING PROPER VEGETATIVE 'BEST MANAGEMENT PRACTICES' DURING THE CONSTRUCTION PERIOD.
3. MAINTAIN NEEDED STRUCTURAL 'BEST MANAGEMENT PRACTICES' AND REMOVE SEDIMENT FROM DETENTION PONDS AND SEDIMENT BASINS AS NEEDED.
4. DETERMINE RESPONSIBILITY FOR LONG TERM MAINTENANCE OF PERMANENT 'BEST MANAGEMENT PRACTICES'.
5. IF CONSTRUCTION IS ANTICIPATED DURING WINTER MONTHS, REFER TO 'COLD WEATHER SITE STABILIZATION REQUIREMENTS'.

D. INVASIVE SPECIES AND FUGITIVE DUST

1. THE PROJECT SHALL NOT CONTRIBUTE TO THE SPREAD OF INVASIVE SPECIES. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EVALUATE WORK AREAS FOR THE PRESENCE OF INVASIVE SPECIES, AND IF FOUND SHALL TAKE NECESSARY MEASURES TO PREVENT THEIR SPREAD IN ACCORDANCE WITH RSA 430:51-57 AND AGR 3800. THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO PREVENT THE INTRODUCTION OF INVASIVE SPECIES BY INSPECTING AND CLEANING ALL EQUIPMENT ARRIVING ON SITE.
2. FUGITIVE DUST SHALL BE CONTROLLED IN ACCORDANCE WITH ENV-A 1000.

COLD WEATHER SITE STABILIZATION REQUIREMENTS

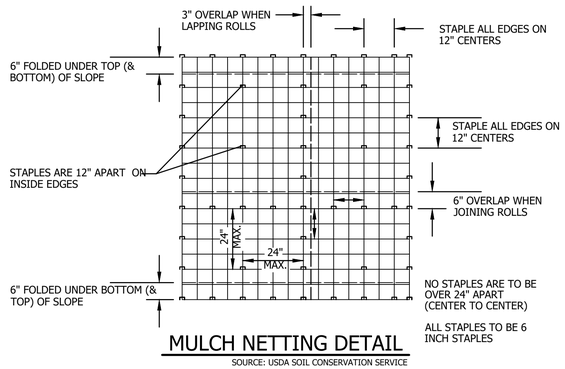
TO ADEQUATELY PROTECT WATER QUALITY DURING COLD WEATHER AND DURING SPRING RUNOFF, THE FOLLOWING ADDITIONAL STABILIZATION TECHNIQUES SHALL BE EMPLOYED DURING THE PERIOD FROM OCTOBER 15 THROUGH MAY 1:

1. THE AREA OF EXPOSED, UNSTABILIZED SOIL SHALL BE LIMITED TO 1 ACRE AND SHALL BE PROTECTED AGAINST EROSION BY THE METHODS DESCRIBED IN THIS SECTION PRIOR TO ANY THAW OR SPRING MELT EVENT. THE ALLOWABLE AREA OF EXPOSED SOIL MAY BE INCREASED IF A WINTER CONSTRUCTION PLAN, DEVELOPED BY A QUALIFIED ENGINEER OR A CPESC SPECIALIST, IS REVIEWED AND APPROVED BY NHDES.
2. ALL PROPOSED VEGETATED AREAS HAVING A SLOPE OF LESS THAN 15% WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE SEEDED AND COVERED WITH 3 TO 4 TONS OF HAY OR STRAW MULCH PER ACRE, SECURED WITH ANCHORED NETTING OR TACKIFIER, OR 2 INCHES OF EROSION CONTROL MIX MEETING THE CRITERIA OF ENV-WQ 1506.05(D) THROUGH (H).
3. ALL PROPOSED VEGETATED AREAS HAVING A SLOPE OF GREATER THAN 15% WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE SEEDED AND COVERED WITH PROPERLY INSTALLED AND ANCHORED EROSION CONTROL MATTING OR WITH A MINIMUM 4 INCH THICKNESS OF EROSION CONTROL MIX MEETING THE CRITERIA OF ENV-WQ 1506.05(D) THROUGH (H).
4. INSTALLATION OF ANCHORED HAY MULCH OR EROSION CONTROL MIX, MEETING THE CRITERIA OF ENV-WQ 1506.05(D) THROUGH (H), SHALL NOT OCCUR OVER SNOW OF GREATER THAN 1 INCH IN DEPTH.
5. INSTALLATION OF EROSION CONTROL MATTING SHALL NOT OCCUR OVER SNOW OF GREATER THAN ONE INCH IN DEPTH OR ON FROZEN GROUND.
6. ALL PROPOSED STABILIZATION IN ACCORDANCE WITH NOTES 2 OR 3 ABOVE, SHALL BE COMPLETED WITHIN 1 DAY OF ESTABLISHING THE GRADE THAT IS FINAL OR THAT OTHERWISE WILL EXIST FOR MORE THAN 5 DAYS.
7. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS, AS DETERMINED BY THE OWNER'S ENGINEERING CONSULTANT.
8. AFTER OCTOBER 15, INCOMPLETE ROAD OR PARKING AREAS WHERE ACTIVE CONSTRUCTION OF THE ROAD OR PARKING AREA HAS STOPPED FOR THE WINTER SEASON SHALL BE PROTECTED WITH A MINIMUM 3 INCH LAYER OF BASE COURSE GRAVELS MEETING THE GRADATION REQUIREMENTS OF NHDOT STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION, 2016, ITEM NO. 304.1 OR 304.2.

CONSTRUCTION SEQUENCE

1. PREPARE AN EROSION CONTROL PLAN OR A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REQUIREMENTS.
2. CUT AND CLEAR TREES WITHIN THE CLEARING LIMITS.
3. INSTALL SEDIMENT FENCES, ROCK CHECK DAMS, AND OTHER APPROPRIATE EROSION CONTROL MEASURES AT LOCATIONS SHOWN ON THE PLANS AND AS NEEDED.
4. GRUB SITE WITHIN GRADING LIMITS.
5. INSTALL/ADJUST SEDIMENT FENCE, CHECK DAMS, AND HAYBALES, AS REQUIRED.
6. PROCEED WITH WORK, LIMITING THE DURATION 0F DISTURBANCE. THE MAXIMUM OF UNCOVERED DISTURBED EARTH AT ANY ONE TIME IS FIVE ACRES. THE MAXIMUM LENGTH OF TIME THAT DISTURBED EARTH MAY BE LEFT UNSTABILIZED IS 45 DAYS. CHECK THE
7. BEGIN SEEDING AND MULCHING IMMEDIATELY AFTER GRADING. ALL DISTURBED AREAS SHALL BE STABILIZED WITH APPROVED METHODS WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.

   AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
   A) BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
   B) A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
   C) A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED; OR
   D) EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.
8. INSPECT ALL EROSION CONTROL MEASURES ON A DAILY BASIS AND AFTER EVERY 0.5 INCHES OF PRECIPITATION. MAINTAIN SEDIMENT FENCE, SEDIMENT TRAPS, HAY BALES, ETC., AS NECESSARY.
9. RESURFACE ROADWAYS AND/OR PARKING AREAS.
10. PLACE TOPSOIL, SEED AND MULCH.
11. COMPLETE ALL REMAINING PERMANENT EROSION CONTROL STRUCTURES.
12. MONITOR THE SITE AND MAINTAIN STRUCTURES AS NEEDED UNTIL FULL VEGETATION IS ESTABLISHED.



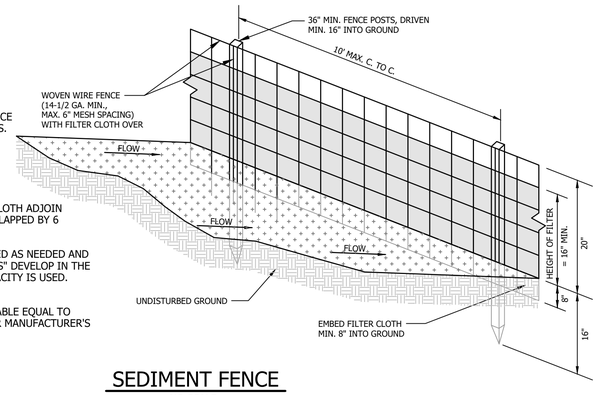
MULCH NETTING DETAIL

SOURCE: USDA SOIL CONSERVATION SERVICE

NO SCALE

CONSTRUCTION NOTES FOR SEDIMENT FENCE

1. WOVEN WIRE FENCE, IF REQUIRED, TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP, MID SECTION, AND BOTTOM.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY 6 INCHES, FOLDED AND STAPLED.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SEDIMENT FENCE, OR 50% OF CAPACITY IS USED.
5. 12" DIAMETER FILTREXX SILTSOXX SHALL BE CONSIDERED AN ACCEPTABLE EQUAL TO SEDIMENT FENCE IF INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.



SEDIMENT FENCE

NO SCALE

PRELIMINARY PRICING SET
NOT FOR CONSTRUCTION

DATE OF PRINT
MARCH 18 2021
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LOCH LYME LODGE

UTILITY IMPROVEMENT PROJECT

LYME, NEW HAMPSHIRE

CONSTRUCTION SEQUENCE, EROSION CONTROL NOTES AND DETAILS

NO.	DATE	REVISION DESCRIPTION	ENG	DWG

STATE OF NEW HAMPSHIRE — CHRISTOPHER J. HERNICK No. 15390 — PROFESSIONAL LICENSED ENGINEER

DATE:	PROJECT #:
MAR 2021	20819
ENGIN'D BY: CJH	DRAWN BY: CJH
CHECK'D BY: WTD	ARCHIVE #: H-___

SHEET C3.1

last revised: 2018-APR-18

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STANDARD TRENCH NOTES - WATER

1. ORDERED EXCAVATION OF UNSUITABLE MATERIAL BELOW GRADE SHALL BE REPLACED WITH BEDDING MATERIAL. SEE ALSO NOTE 4.

2. BEDDING: SCREENED GRAVEL AND/OR CRUSHED STONE FREE FROM ORGANIC MATTER, CLAY, AND/OR LOAM MEETING ASTM C33 STONE SIZE NO. 67.

100% PASSING	1 INCH SCREEN
90-100% PASSING	¾ INCH SCREEN
20-55% PASSING	⅜ INCH SCREEN
0-10% PASSING	#4 SIEVE
0-5% PASSING	#8 SIEVE

3. SAND BLANKET: CLEAN SAND FREE FROM ORGANIC MATTER, SO GRADED THAT 100% PASSES A ½ INCH SIEVE AND NOT MORE THAN 15% PASSES A #200 SIEVE.

4. SUITABLE MATERIAL: IN ROADS, ROAD SHOULDERS, WALKWAYS, AND TRAVELED WAYS, SUITABLE MATERIAL FOR TRENCH BACKFILL SHALL BE THE NATURAL MATERIAL EXCAVATED FROM THE TRENCH DURING THE COURSE OF CONSTRUCTION, AFTER EXCLUDING DEBRIS, PIECES OF PAVEMENT, ORGANIC MATTER, TOP SOIL, WET OR SOFT MUCK, PEAT OR CLAY, EXCAVATED LEDGE MATERIAL, AND ALL ROCKS OVER SIX INCHES IN LARGEST DIMENSION, OR ANY MATERIAL NOT APPROVED BY THE ENGINEER.

   TRENCH BACKFILL IN CROSS-COUNTRY LOCATIONS SHALL BE SUITABLE MATERIAL AS DESCRIBED ABOVE, EXCEPT THAT TOP SOIL, LOAM, MUCK, OR PEAT MAY BE USED PROVIDED THAT THE COMPLETED CONSTRUCTION WILL BE STABLE AND ACCESS TO THE PIPE FOR MAINTENANCE AND RECONSTRUCTION IS PRESERVED. BACKFILL SHALL BE MOUNDED TO A HEIGHT OF SIX INCHES ABOVE THE ORIGINAL GROUND SURFACE

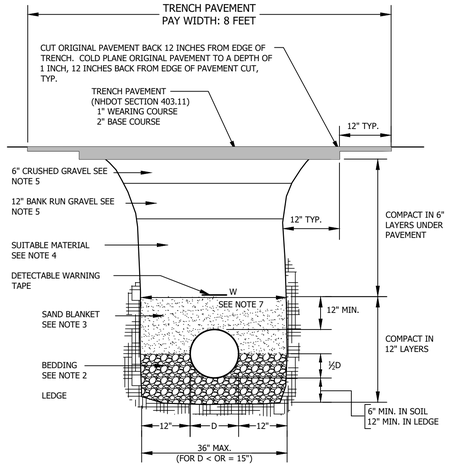
5. BASE COURSE FOR TRENCH REPAIR SHALL MEET THE REQUIREMENTS OF SECTION 300 OF THE LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION OF THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION.

6. SHEETING: ALL TRENCH SUPPORTS SHALL CONFORM TO OSHA STANDARDS. CONTRACTOR IS RESPONSIBLE FOR OSHA COMPLIANCE AND WORKER SAFETY THROUGHOUT CONSTRUCTION.

7. TRENCH DIMENSIONS: W = MAXIMUM ALLOWABLE TRENCH WIDTH MEASURED 12 INCHES ABOVE THE PIPE. FOR PIPES 15 INCHES NOMINAL DIAMETER (D) OR LESS, W SHALL BE NO MORE THAN 36 INCHES; FOR PIPES GREATER THAN 15 INCHES NOMINAL DIAMETER, W SHALL BE 24 INCHES PLUS THE PIPE OUTSIDE DIAMETER. W SHALL ALSO BE THE PAYMENT WIDTH FOR LEDGE EXCAVATION AND FOR ORDERED EXCAVATION BELOW GRADE. THE MAXIMUM ALLOWABLE TRENCH PAVEMENT PAYMENT WIDTH SHALL BE 8 FEET CENTERED OVER PIPE.

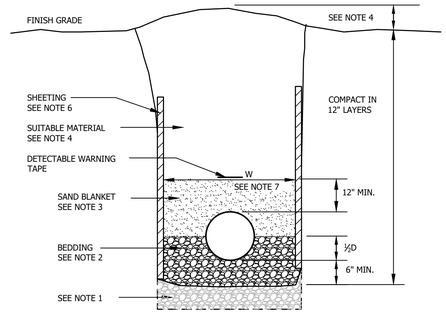
8. WATER/SEWER SEPARATION: WATER MAINS SHALL BE SEPARATED FROM SANITARY SEWER BY A MINIMUM OF 10 FEET HORIZONTALLY AND A MINIMUM OF 18 INCHES VERTICALLY, WITH THE WATER MAIN ABOVE THE SEWER.

9. PIPE COVER:
   COVER OVER WATER SHALL BE 6 FEET MINIMUM IN ALL LOCATIONS.



NOTE:
MINIMUM BEDDING DEPTH AND MAXIMUM PAYMENT LIMIT FOR LEDGE EXCAVATION = ½D (12" MINIMUM)

LEDGE/SUB PAVEMENT CONSTRUCTION



EARTH CONSTRUCTION
WITH OR WITHOUT SHEETING

STANDARD TRENCH SECTIONS

NOT TO SCALE

- BLOCKS MUST BE POURED AGAINST UNDISTURBED SOIL
- THE PIPE JOINT AND BOLTS MUST BE ACCESSIBLE.
- CONCRETE SHOULD BE CURED FOR AT LEAST 5 DAYS AND SHOULD HAVE A COMPRESSION STRENGTH OF 3,000 LBS. AT 28 DAYS.
- BLOCKS MUST BE POSITIONED TO COUNTERACT THE DIRECTION OF THE RESULTANT THRUST FORCE.

RESTRAINED JOINTS MAY BE USED FOR RESISTING THRUST FORCES WHERE THERE IS A SHORTAGE OF SPACE OR WHERE THE SOIL BEHIND A FITTING WILL NOT PROVIDE ADEQUATE SUPPORT. THIS RESTRAINING METHOD INVOLVES PLACEMENT OF THESE SPECIAL JOINTS AT APPROPRIATE FITTINGS AND FOR A PREDETERMINED NUMBER OF PIPE LENGTHS ON EACH SIDE, (MINIMUM 15 FEET).

RESULTANT THRUST AT FITTINGS AT 100 PSI WATER PRESSURE

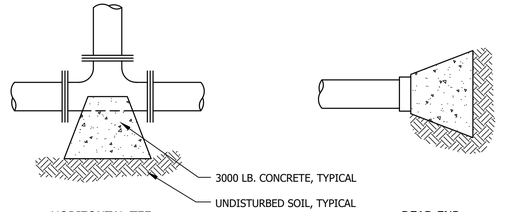
NOMINAL PIPE DIA. (INCHES)	TOTAL THRUST (POUNDS) DEAD END	90° BEND	45° BEND	22½° BEND	11¼° BEND
4	1,810	2,559	1,385	706	355
6	3,739	5,288	2,862	1,459	733
8	6,433	9,097	4,923	2,510	1,261
10	9,677	13,685	7,406	3,776	1,897
12	13,685	19,353	10,474	5,340	2,683
14	18,385	26,001	14,072	7,174	3,604
16	23,779	33,628	18,199	9,278	4,661
18	29,865	42,235	22,858	11,653	5,855
20	36,644	51,822	28,046	14,298	7,183
24	52,279	73,934	40,013	20,398	10,249

NOTE:
TO DETERMINE THRUST AT PRESSURES OTHER THAN 100 PSI, MULTIPLY THE THRUST OBTAINED IN THE TABLE BY THE RATIO OF THE PRESSURE TO 100. FOR EXAMPLE, THE THRUST ON A 12 INCH, 90° BEND AT 125 PSI IS:

19,353 x 125 = 24,191 POUNDS
100

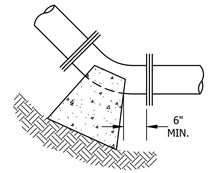
TO DETERMINE THE SIZE OF A CONCRETE THRUST BLOCK, DIVIDE THE TOTAL FORCE BY THE BEARING VALUE OF THE SOIL. THE QUOTIENT WILL BE THE SIZE OF THE BEARING AREA OF THE THRUST BLOCK IN SQUARE FEET. APPROXIMATE VALUES FOR VARIOUS TYPES OF SOIL ARE LISTED BELOW.

SOIL	BEARING LOAD (LBS./SQ. FT.)
MUCK	0
SOFT CLAY	1,000
SILT	1,500
SANDY SILT	3,000
SAND	4,000
SANDY CLAY	6,000

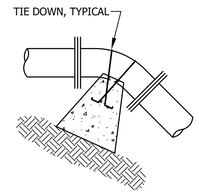


HORIZONTAL TEE

DEAD END



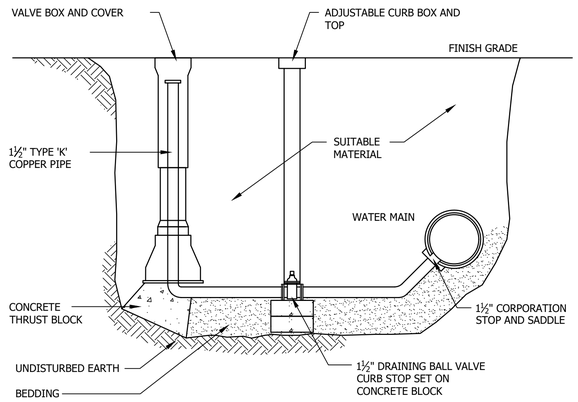
HORIZONTAL BEND



VERTICAL BEND

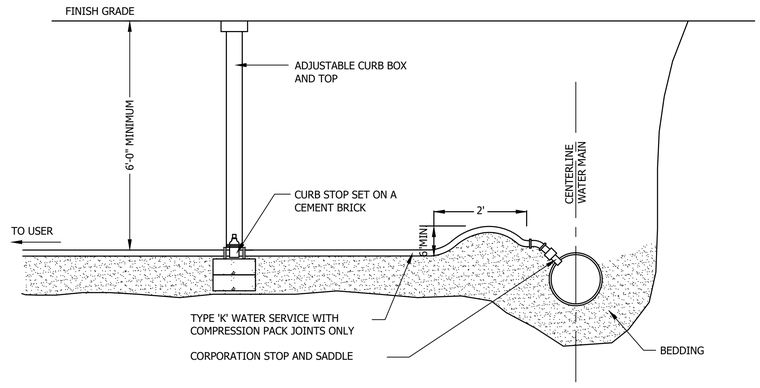
THRUST BLOCK NOTES & DETAILS

NOT TO SCALE



BLOWOFF DETAIL

NOT TO SCALE



WATER SERVICE CONNECTION

NOT TO SCALE

PRELIMINARY PRICING SET
NOT FOR CONSTRUCTION

DATE OF PRINT
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NEWPORT VT • LITTLETON NH • NEW LONDON NH
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LOCH LYME LODGE

UTILITY IMPROVEMENT PROJECT

LYME, NEW HAMPSHIRE

STANDARD WATER SYSTEM DETAILS AND NOTES

NO.	DATE	REVISION DESCRIPTION	ENG	DWG

STATE OF NEW HAMPSHIRE
CHRISTOPHER J. HERNICK
No. 15390
LICENSED PROFESSIONAL ENGINEER
Christopher J. Hernick

DATE: MAR 2021	PROJECT #: 20819
ENGIN'D BY: CJH	DRAWN BY: CJH
CHECK'D BY: WTD	ARCHIVE #: H-___

SHEET C3.2

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